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ARCHITECTURAL REVIVALISM AND THE NEW DELHI.

THE oscillations of authority exhibited in British Government buildings during the past century are probably beyond compare. Munich has a reputation for impulsive artistic government, Vienna has at least in two great directions during the long reign of its present Emperor pursued opposite ideals, but London, without either the impulse of Munich or the compulsion of new Vienna, has produced an architectural miscellany of wonderful range and extraordinary intensity but of small resulting influence. We have as the result of a century of Governmental development and building achieved no architectural school and have consecrated no other tradition than that of eclectic revivalism as a national characteristic.

The neo-Greek which one hundred years ago succeeded to the current tradition of Chambers and Nash has left us, among others, such monuments as the Bank of England, the late lamented Post Office, the National Gallery, and the British Museum, each having necessarily an underlying characteristic plan expressing a modern purpose, but clothed in as purely Grecian architecture as the architects could command.

The Gothic revival which ensued, in the contrariety of revivalism, gave us the Houses of Parliament, certainly one of the most important buildings of the XIXth century in Europe, having its aftermath in the Royal Courts of Justice, effervescing with scholarly enthusiasm, but less characteristic either of our past or present than any other official building of similar scale. Between these Gothic landmarks lie such achievements as Holloway Prison and the Record Office, each purposeful and expressive, but inartistic because inflamed with false sentiment.

Queen Anne then stepped into the breach in the actual break-up of traditional lines of artistic thought, claiming to be a *via media* in the battle of the styles, to which the New Scotland-yard remains, already in the distance, as another monument of individual power, without parentage or descendants, among the miscellanies of official architecture. A manner of design which originated in purely domestic traditions was exaggerated into the scale of a great public office in this chief instance, and in a multitude of others applied to a wide group of large school buildings, imparting only quaintness where something more satisfying and educative would have been welcome.

Meanwhile, outside the stream of enthusiasm, beyond the influence of the revivalists of the bygone, there existed a current type which the elect rudely classed as inartistic, employing the ordinary forms of cornices, arches, and imposts, and which for want of an historic label was properly named Victorian, a good name which has unfairly attained an almost contemptuous meaning. This style, for such it is, lacks that flavour of antiquity valued by the epicure in game, which is supposed to give value and justification to the later Georgian or the works of the Adam Brothers. It represents the practical residuum of modern architecture deprived of that artistic attention to refinement,

proportion, and decoration which was appropriated by architects devoted only to revivalism. Shorn of the ephemeral trappings of fashion and gyrating taste, this Victorian type of building remains our most generally representative architecture. Its defects are our fault, and its permanence and commercial usefulness a constant witness against our perverse tendency to gather only the fruits and flowers of past architectural growths instead of attending to the roots from which true development proceeds.

If we did not habitually look backwards for architectural guidance and inspiration the opportunity which the new Delhi affords for progress and development would offer no ground for discussion of the "style" or epoch proper for its buildings. For more than a century we have indulged ourselves in these antiquarian studies with only a pseudo-artistic intent. Nothing is of greater value to the architect of to-day than an intelligent knowledge and sympathetic appreciation of the building motives of the past, if the aim of his inquiry is directed to the mind which planned rather than to the accidents of its artistic expression. But the employment of the ancient styles, with superstitious reverence, as artistic fetishes, or as magic "open sesames" to beauty, is not really that intelligent archæology which is desirable; instead of this it has led to mere revivalism without permanent benefit to the stream of our national architecture. It is therefore important that architects should recognise and break with the habit of weighing every modern opportunity for a great building as an occasion for the selection of another suitable artistic style from their gallery of antiquity.

The distinction between artistic revivalism and intelligent archæological study must be preserved and insisted upon; the one is superficial and both facile and fascinating to a ready draughtsman, while the other is essential and difficult of elucidation, involving in its analysis of purpose (so to speak of the mentality of a building) research into economic motives and methods of construction of essential value in the promotion of our adaptative and progressive habit of architectural thought.

Review of the lessons of history in an attempt to appreciate the attitude of mind towards the architectural problems of a new capital city displayed by the great nations of antiquity will furnish the guidance and inspiration which this problem demands, but the discussion of style upon the basis of artistic sentiment will be fatal to any hope of laying architectural foundations which succeeding generations can be content to build upon. The modern English architect with this uniquely characteristic subject must undertake to think soberly, without the fictitious glamour of antiquity cast upon his imaginations, and endeavour, as he very well can, to be at once true to our own *Zeitgeist* and to his own genuinely artistic perception of refinement in building art. The material for architectural expression lies at hand in the universally accepted classic tradition, always progressive, and in the hands of continental architects manifestly original and consistent. If enthusiasm is the note of the modern student there is as much stimulant in the study of the present as of the past.

Our building art is *de facto* as extensive as our Empire, for from the capitals of Canada in the North West to the new Federal capital of Australia in the South East, wider far than the ægis of ancient Rome, all are being built in modern practicable adaptations of classic architecture, and need only that artistic power to make them fine which we have hitherto spent in looking backward. The special influences of climate, material, and purpose will condition and express themselves in this classic style quite truly in Delhi, while conviction that the path is one of definite progress will give vitality to the school which must arise locally to carry out in many varied applications the official architecture of the new capital. Greater Britain cannot afford to put back the hands of the architectural clock-face which keeps time for ages.

THE UNITY OF ART.

AT the opening meeting of the new session of the Architectural Association Mr. Gerald C. Horsley, F.R.I.B.A., closed his Presidential Address, which he had devoted mainly to new developments in the School of Architecture, with the reminder that the underlying purpose of all educational effort and development is to help forward the course of our art, and that therefore it must be based upon the principle that art is unity. In this at least all thoughtful students, old and young, will agree. Yet none the less there is need that we should thus be reminded of it as a fundamental principle which, especially in the presence of the young student, it is scarcely possible to dwell upon with too great an insistence. The principle has many aspects, and we do not at present wish to touch upon that of the universality or continuity of true architecture or the unity of all the other arts under architecture, but only on that aspect which insists upon the axiom that all genuine architecture must first of all be a unity in itself. Tried by this standard, where does architecture stand to-day? In education—in text-book, classroom, and examination—those studies having for their object the making of buildings beautiful are still to a too large extent dealt with separately from those of their efficient arrangement and construction. The personnel of the profession—principals, assistants, pupils—tends to divide into two broad types, often with a quite healthy and good-humoured contempt of each other, the "artistic," with great and sometimes scholarly knowledge of styles, and ingenuity in æsthetically designing in them; and the "practical," with knowledge of construction and materials and ability to arrange and carry out buildings. And in actual practice, apart from the broad cleavage of building into engineering and architecture, there is in the latter a growing divorcement between architectural features and the real factors of construction. The true construction of buildings tends to be lost in a conventional semblance of construction applied from without, often noble and beautiful enough—were it but true. The twin purposes of art, use and beauty, are dragged apart and the name of art reserved for the abstract adornment of what is conceived of as in itself ugly. Can it be denied that these things are so, and are becoming more tolerated? Truly we need to be reminded every day that art is unity, that the beginnings of architectural beauty are to be sought in true and efficient arrangement and construction and the right and joyous use of materials; and that the intelligent study of the old styles is useful mainly to these ends. Aiming at this with the utmost of our striving we shall truly run our course and hand on the torch alight to those who take our place.

NOTES.

Wren—and a Statue.

ADVERTING to our leader of the 18th inst. and to our comment in the same issue upon the absence of a statue to Sir Christopher Wren in the metropolis, we may mention that M. Gustave Pessard, of Paris, has just issued a pamphlet in which he gives a classification of the statues erected in Paris to famous men, and shows there are fifty to poets, forty-seven to authors, thirty-nine to painters, twenty-three to architects, and twelve to sculptors. M. Pessard reckons that, besides the monuments in burial grounds, the number of men thus individually commemorated exceeds nine hundred, the poets being the most numerous. The figures of Wren, Pugin, Barry, C. P. Cockerell, and other architects, sculptured in marble in relief around the podium of the Prince Albert Memorial, completed in 1871, are by J. Birnie Philip.

Buckingham Palace.

THROUGH the courtesy of the First Commissioner of Works and Sir Aston Webb, R.A., we have had an opportunity of seeing the approved design for the new front of Buckingham Palace, which we intend to illustrate in our next week's issue, together with an article on the architecture of the Palace. Considering the strict limitations under which Sir Aston Webb has been compelled to work, which have precluded him from altering the arrangement and spacing of doors and windows, we consider the design will meet with general approval. The new front is restrained, quiet, and dignified, and forms a fitting architectural background to the late Queen's Memorial.

"The City Beautiful."

AN American writer, in an article "On the Model Towns in America," which appeared in a recent number of *Scribner's Magazine*, protests against the use of the phrase "the city beautiful," although he contributes many useful ideas towards the practical realisation of a beautiful city. We do not feel inclined to resent his protest. The phrase has become hackneyed, and as soon as a phrase which may be pleasant enough in itself is adopted without discrimination it not only becomes misapplied, but loses its

original significance. In any case, the particular epithet in question can only be properly used in giving expression to some ideal conception, because the grammatical inversion could not very well be applied to an existing state of things. There are many beautiful cities, but there is no existing city beautiful. The two terms indeed involve different conceptions. By a beautiful city we usually either mean an aggregation of buildings retaining their original position and form, as in Nuremberg, Rothenburg, Bruges, and many another ancient town (what mediæval town which retains its ancient atmosphere is not beautiful?), or we mean the replanning and remodelling, the erection of fine buildings, the pleasant spacing out of hitherto congested and wasted areas, and so on, as in Paris or Vienna. The æsthetic application of the term would, of course, in regard to these two types carry various values; in neither case would it imply precisely the same thing, although each would be susceptible of explicit analysis. But to talk of the city beautiful is like talking of the Elysian fields, an aspiration or a figment of the imagination; and this no doubt was the idea meant to be conveyed by those who first used it. But the term has been used and abused out of recognition. To the majority it probably suggests some imitation of the so-called quaint and picturesque in planning and building, which discovered a perfectly natural development in older cities, and presently it may serve as a trade description for business purposes, if indeed it has not already done so. In any case, a certain preciosity is attached to the phrase, and in so far we are in agreement with our American friend in his protest against its indiscriminate application.

London's Green Girdle.

THE threatened destruction at the hands of the speculative builder of the beauty and natural charms of Pewley Down, Guildford, once again raises the question of the need for a green girdle round London. This hill, which is some 400 ft. above sea level, commands one of the most varied and beautiful views in Surrey, extending from Hindhead on the one hand to Leith Hill on the other. The public has hitherto enjoyed uninterrupted access to the whole of the hillside, which is a favourite resort of the townsfolk of Guildford. The owner has always been willing to consider proposals for acquiring this land for the public, and in 1906 gave the town of Guildford an opportunity of purchasing it. Although obligations just entered into in other directions prevented Guildford from considering the offer, it is to be hoped that circumstances may now be more propitious, and that, with a new chalk road and wooden fence across the hill as a proof of the urgency of the case, the town may at the last moment be able to save the situation. But if natural beauty must be destroyed, at least ordered and artistic beauty should replace it. If Guildford cannot afford to preserve this estate in its present condition, it would, we presume, be competent for its Corporation to acquire and develop it on Town Planning or Garden Suburb lines as a revenue-producing scheme. This, at any rate, would save it from the sordid ugliness that would otherwise most probably be its fate. But, although Guildford is more immediately concerned, London also has an interest and some responsibility in the matter, for the Surrey Downs are its natural breathing-space and playground. If, owing to the conditions which obtain in an old civilisation, it is hopeless to expect that London will ever emulate the large American cities and obtain control over the whole of its southern heights as a step towards such a green girdle as is already possessed by Vienna, it certainly appears feasible to preserve the view-points and the woodland tracts along the crest of the whole range of the Downs, and so obtain a continuous series of drive-ways and reserves of incalculable benefit to the metropolis.

PARIS NOTES.

THE amenities of Paris are as much disturbed as London by the pulling up of roads and the erection of hoardings; but the proposal to deface the Place de la Concorde by placing within its area the exits and entrance, with an exterior balustrade, of a station for a new line of the Metropolitan is scarcely likely to be carried into effect. The outcry of public opinion would be too great. The Parisians are proud of their finest "place," and are not likely to permit any vandalism of the sort. They say that if a station is necessary in the neighbourhood it can very well be placed in a secluded position adjacent to the Tuileries gardens. The original layout of the Place de la Concorde, as designed by Gabriel, was not carried out completely, but as it is it remains one of the principal ornamental features of the city. Public squares do not, we believe, come within the regulations which could secure their classification as historic monuments; but we are glad to see the announcement that another work of Gabriel has just come within the operation of this regulation. It is not perhaps until recent years that l'Ecole Militaire, designed by this architect, has obtained the attention which it deserves for its architectural qualities. It is now included in the itinerary of most English students visiting Paris. It was one of the first works for whose design Gabriel was solely responsible, although it was constructed under the charge of another architect. The present wings were added in 1855.

The number of original drawings and sketches which are practically lost sight of in the great museums and libraries of both France and England must be enormous. They possess value not only as independent works of art, but as documents which throw light upon an artist's processes in the creation of his completed work; and many of them are of an architectural character. Students, therefore, will be particularly grateful to M. Pujalet, the Director of the National Museums, for his scheme to reserve rooms in the Louvre for the exhibition of selections from the 40,000 drawings or prints which are in the care of the Museum. It is proposed to show from time to time either the drawings of a particular period or those of a certain artist or of a certain school. We daresay that these exhibitions will lead to discoveries which may help to unravel some knotty points in connexion with architectural biography and history.

The epidemic which has prevailed in France for some time, and which involves the theft or destruction of pictures and other works of art exhibited in the public galleries seems to be spreading. The theft of Leonardo's "Mona Lisa" from the Louvre was probably the most serious instance; but there have since been many others. The worst of the business is that the malefactor is rarely discovered. The arrest last month of Géry-Piéret, who stole two Phœnician statuettes from the Louvre in September, 1911, is an exception. The arrest took place in Egypt, and his extradition has been demanded. But quite recently four pictures at Versailles have been cut with a knife; a celebrated picture in the Gallery at Nancy has been seriously burnt by, it is presumed, a lighted cigar; an important painting of Christ, by Domenico Costi, has disappeared from l'Eglise de la Miséricorde, at Livourne, and there are numerous other unfortunate instances of the kind.

When the Parisian laughs he laughs heartily, although always perhaps with a touch of malice. The autumn Salon has provided him with his latest joke. The result is rather a curious position of affairs. While some of the most eminent critics and one or two of the more serious French journals are developing theories on the Futurists, Cubists, and other exponents of the Post-Impressionist movement, whose works have found a place on the walls of the Grand Palais, other writers are recommending the exhibition as a cure for hypochondria and neurasthenia on account of its mirth-provoking qualities. It is possible that these curious art manifestations may be laughed out of court; there is nothing so deadly as ridicule. The Post-Impressionists themselves are probably accepting the ridicule in a spirit of martyrdom. The incompetents among them probably prefer being laughed at to remaining entirely unnoticed.

PICTURE EXHIBITIONS.

THE autumn season for the exhibition of pictures is now in full swing, and the galleries of various societies, as well as those of the well-known dealers, are giving us, we presume, of their best with varying degrees of success. In a general way the autumn shows of the societies rarely attain the standard of the earlier exhibitions of the year. The thirtieth exhibition of the Royal Institute of Oil Painters, recently opened in Piccadilly, shows little sign of age; the Institute would seem indeed to remain pretty much where it first started! Much has happened in the world of painting, in the British school as in others, since this corporation of painters was first organised, at a time which was not a very interesting period (although never more popular) for British art. In the galleries at Piccadilly 'this late Victorian influence largely predominates. But we do not wish to do the Institute any injustice, for its exhibition contains many works of first-rate quality. Mr. Lavery, who is ubiquitous, shows some of his later studies of pretty seaside bays. Like Mr. Sargent, Mr. Lavery would seem of later years to have forsaken his commissions for portraits to indulge in a personal predilection for the charms of natural scenery. Both artists have apparently become a little tired of a *métier* which either their circumstances, talent, or clients had, more or less, imposed upon them. But while Mr. Sargent discovers his pleasure in the more tumultuous aspects of Nature, in its cascades and rocks, Mr. Lavery finds it in the tranquil seas off the Lido, or in some other seaside resort of Southern Europe or North Africa. His pictures of this type are growing in interest, and the two which he shows at the Piccadilly Galleries indicate greater freedom in the Lavery formula than others which we have recently seen elsewhere. Mr. Reginald Frampton, in his large picture of Saint Christopher, follows some of the old masters in his choice of subject; the saint bears in the person of the infant Christ "the burthen and weight of all this unintelligible world." The symbol of this passage of the legend does not make it quite suitable for pictorial representation, because the giant form of the saint has actually to bend under the weight of a small child. We feel this difficulty—the difficulty of conveying a symbolic idea in terms of actual representation—in regard

Ghent Exhibition, 1913: The British, Belgian, and French Pavilions.

to Mr. Frampton's composition, which is otherwise powerful and attractive. In the same artist's two small pictures of Alpine scenery the mountains are resolved into a decorative form and pattern without losing any of their natural impressiveness. This departure from the merely photographic resemblance of this romantic scenery is interesting, and we should like to see some more ambitious attempt by Mr. Frampton of the same kind. Mr. Glyn Philpot is vague and mysterious in "The Paschal Light," in which the sombre interior of a cathedral is partly illumined by the candles carried by a group of processional priests. The vigour and freedom of Mr. Edgar Bundy's costume pictures is well represented in his "Welcome." The character of the landlord of the inn, as well as that of the soldiers whom he is welcoming, is an admirable evocation of cavalier times, and provides an illustration of a possible episode. The only picture which Mr. Lee Hankey has sent to the exhibition is chiefly interesting for the variety of technical methods employed in its composition; here he leaves the canvas bare, here incrustates it with paint with the palette knife, here employs smooth brushwork. The whole effect is perhaps a little fragmentary, but this humble interior with the mother and child shows also an honest attempt at interpretation, however curious the process of the artist's construction. Miss Gloag, in "The Yellow Coat," achieves one of her audacious studies in colour, which are always a relief to the monotony of the more conventional formulas of the average picture-gallery; while Mrs. Betty Fagan's large picture of a group of children at their morning tub was probably painted for the purposes of reproduction. Mr. Hughes Stanton, Mr. Bertram Priestman, Mr. Terrick Williams, and Mr. Louis Sargent all show interesting work. Mr. Frank Salisbury has sent his design for a large panel for the Houses of Parliament. Apart from a view of St. Paul's from the river by Mr. Arthur Bell, a fountain at Versailles by Mr. Forrestier, and a "La Salute" (viewed from the west of the Grand Canal) by Mr. Arthur Streeton, we did not observe any pictures of architectural interest.

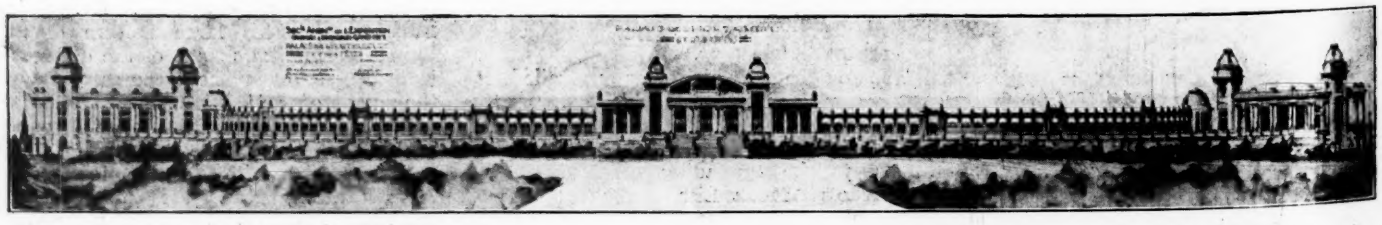
If at the exhibition of the Royal Society of British Artists in Suffolk-street there are no pictures of greater individual merit than at the galleries in Piccadilly, the general effect is more animated, although it is not equal to the spring exhibition. The President, Sir Alfred East, contributes some typical landscapes, pleasant transcripts of Nature interpreted with a grace and facility, if not with very much depth, to which we are accustomed. The art of Sir W. B. Richmond has never perhaps found happier expression in recent years than in his pictures of the hills and valleys of Italy, and his view near Urbino is a very good example of his work in this direction. "A Florentine Podere," by Mr. L. W. Lang, is an ingenious composition of brilliant contrasts of vivid colour, in which the detail is carefully elaborated. Mr. Frank Salisbury, who seems to be fortunate in his commissions for large decorative paintings, shows the sketch of an historical scene designed for a panel for the Royal Exchange. The two landscapes by Mr. Alfred Hartley, "In Cornwall" and "Down Along a Somerset Valley," provide spacious schemes of colour in which everything inessential is subordinated to a broad, general effect. There is little of architectural interest at the exhibition. The general design of Mr. Richter's picture of St. Paul's from the river, with a mass of busy shipping in the foreground, is good, but his colour is ineffective and hard; while the church of the Madonna del Sasso at Locarno loses nothing of its picturesque quality in the handling of Mr. Boot.

At the Leicester Galleries there are at the moment three one-man exhibitions. The collection of the sketches of the late Mr. Phil May are admirably representative of the artist, and would seem to have lost none of their quality of freshness in the years which have passed since their first reproduction in the pages of *Punch*. Mr. May's skill in pen-drawing was not less than his remarkable gift for the humorous observation of character, which has certainly never been equalled by any *Punch* draughtsman except Charles Keene. No modern painter possesses a finer intuition for the possibilities of colour to be found in a hayrick or an old barn than Mr. Clausen, or indeed in rural life and things generally. The small exhibition of some of his recent works (we presume) at the Leicester Galleries include studies in still life, adventures in virtuosity, which are well worth observing for their technical accomplishment. Mr. Clausen is indebted for his method to some of the scientific painters of the French school, but his outlook is not controlled by his method; the sentiment of country life obviously appeals to him for its own sake as well as for a subject for prismatic orchestration. The third artist of the individual group represented at these galleries is Mr. Arthur Rackham, who shows a series of water-colour drawings designed to illustrate "Æsop's Fables" and "Peter Pan." The quaint and fanciful art of Mr. Rackham finds admirable expression in these drawings, but perhaps his exhibition would have gained if he had been represented by a smaller number of illustrations.

THE GHENT EXHIBITION, 1913.

PREPARATIONS are in active progress at Ghent to secure for the Universal and International Exhibition next year the co-operation of exhibitors and the public. The event promises to be important, and, although the building industries will not be represented specially, a variety of attractions will be arranged.

The Exhibition, which is under the patronage of the King of the Belgians, will be opened in April simultaneously with the famous Quinquennial Flower show promoted by the Société Royale d'Agriculture et de Botanique de Gand. When it is mentioned that the azalea and rhododendron hall will cover about 3½ acres, and that the hothouse for orchids will occupy 2 acres, it will be seen that the Exhibition will be on a large scale. The total area will be about 250 acres.



Ghent Exhibition, 1913; Palais de l'Horticulture et des Fêtes.

M. Van de Voorde, Architect.

While Ghent, the city of twenty-six islands, is celebrated for its artistic and archæological resources—and Sir Ernest George is among those who have perpetuated its picturesque beauty—the commercial activities of the city are innumerable, and visitors will find permanent as well as temporary attractions.

Ghent, the capital of the Province of East Flanders, is situated on the confluence of the Lys and the Scheldt. It is 34 miles by rail from Brussels, and is connected with the sea by the Terneuzen Canal. Communication with England is thereby established for commercial and general purposes. There are 6½ miles of docks, and the harbour is capable of holding 400 vessels.

The railway line runs through the Exhibition grounds, and the new station of Ghent St. Peter, with Brussels to the east and Ostend to the west, is already in use. The building is an imposing structure, with a stately tower to mark the entrance, and has a frontage extending about 1,000 ft. The booking-halls and offices are well planned. Every facility is afforded for local and long-distance traffic. Tramways are also being laid.

The 27 acres set aside for the industrial palaces are nearly covered. The British, French, and Belgian palaces are already roofed in. Steel construction and ferro-concrete have been used extensively, and in the opinion of many experts the total effect will be finer than the Brussels Exhibition of 1910. The setting is more spacious, and the surroundings are good.

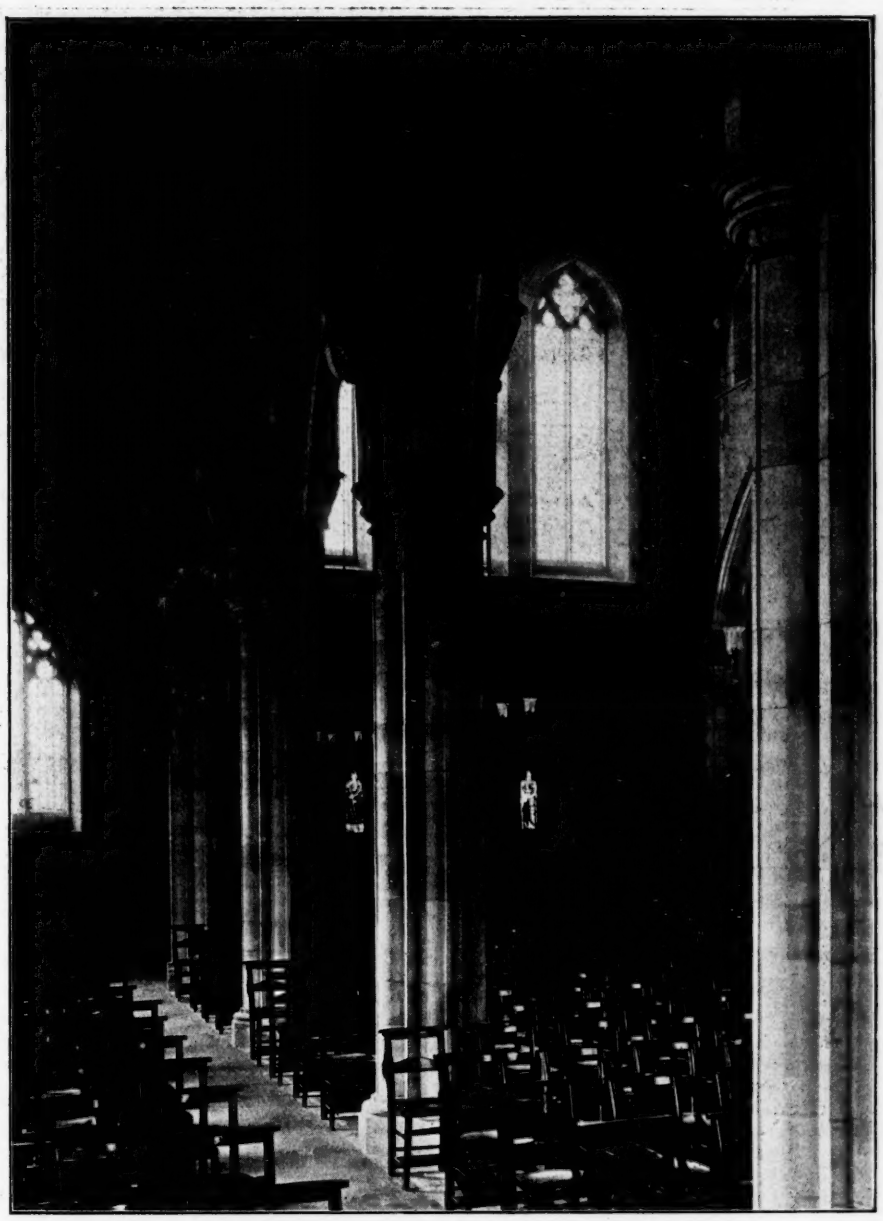
The architect for the exhibition buildings is Professor Van de Voorde, of the University of Ghent.

The Horticultural Palace will be a permanent structure, and should be a valuable acquisition for Ghent. The span of the roof is said to be one-third wider than that of the Crystal Palace. This building is in the form of a vast cross, the long stem of which represents the horticultural show proper, and the broad transverse section, when fitted for seating, can be adapted into a magnificent theatre or concert-hall. The whole space may be utilised, however, for horticultural displays when required.

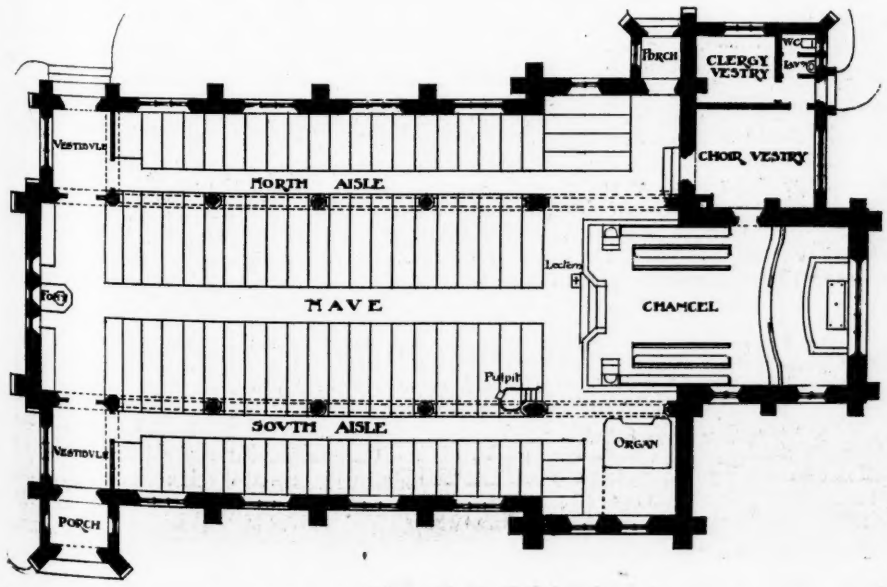
While special prominence will not be given to building appliances (the Exhibition at Leipzig, May-October, covering this ground), it is anticipated that the British display at Ghent will include machine tools, radial drills, pneumatic and electric tools, air compressors, pumping machinery, saw-sharpening machinery, bolt-screwing and nut-tapping machines, ball bearings, feed-water heaters, water-power plants, pumps, power hammers, drilling machines, shafting and power transmissions, double helical and reduction gears, magnetic clutches, lathes, planing and shaping machines, driving chains, drop forgings, engines, electric lighting and pumping plants; crushing, grinding, screen-separating, dust-collecting, and ventilating machinery; woodworking machinery, oxi-welding apparatus, belting, and similar features.

The Board of Trade will secure for British exhibitors the most favourable rates of carriage, arrange for cartage, send an erecting staff, undertake decorations, and provide show-cases, window-dressers, and signs. All these items, which have been found a costly business for the exhibitor, are now dealt with by the Board of Trade, and are included in the space charges. Valuable help will be given by the Government's expert Engineer, who will see that suitable concrete foundations are provided of sufficient strength, and extreme precautions are being taken to avoid risk from fire.

The London office of the Ghent Exhibition, 1913, is at 1, Southampton-row, where particulars may be obtained.



St. Christopher's Church, Sneinton, Notts.
Mr. F. E. Littler, A.R.I.B.A., Architect.



St. Christopher's Church, Sneinton, Notts.
Mr. F. E. Littler, A.R.I.B.A., Architect.

AN EMINENT COLONIAL ARCHITECT.

ARCHITECTURE in South Africa lost one of its chief practitioners by the death, on September 3, at Salisbury, Rhodesia, of Mr. Francis Edward Masey, F.R.I.B.A.

Mr. Masey was articled in 1875 to his father, the late Philip E. Masey, A.R.I.B.A., and in 1878 entered the office of Alfred Waterhouse, R.A., with whom he worked for about fifteen years. He became a student at the Royal Academy Schools in 1885. In 1887 he won the Soane Medallion and 50*l.* of the Royal Institute of British Architects, the subject for the year being "City Police-courts and Police-station for a Provincial Town." He also won a Medal of Merit in the Tite Prize Competition in 1888 (subject, "A Post-office"; won by Mr. G. Kenyon). In 1889 he was awarded a Medal of Merit in the Owen Jones Studentship Competition, won that year by Mr. H. V. Lanchester, and in 1891 another Owen Jones Medal of Merit, with 5*l.* 5s., Mr. Francis W. Bedford being the winner on this occasion. He travelled in Italy and France in 1889-1890.

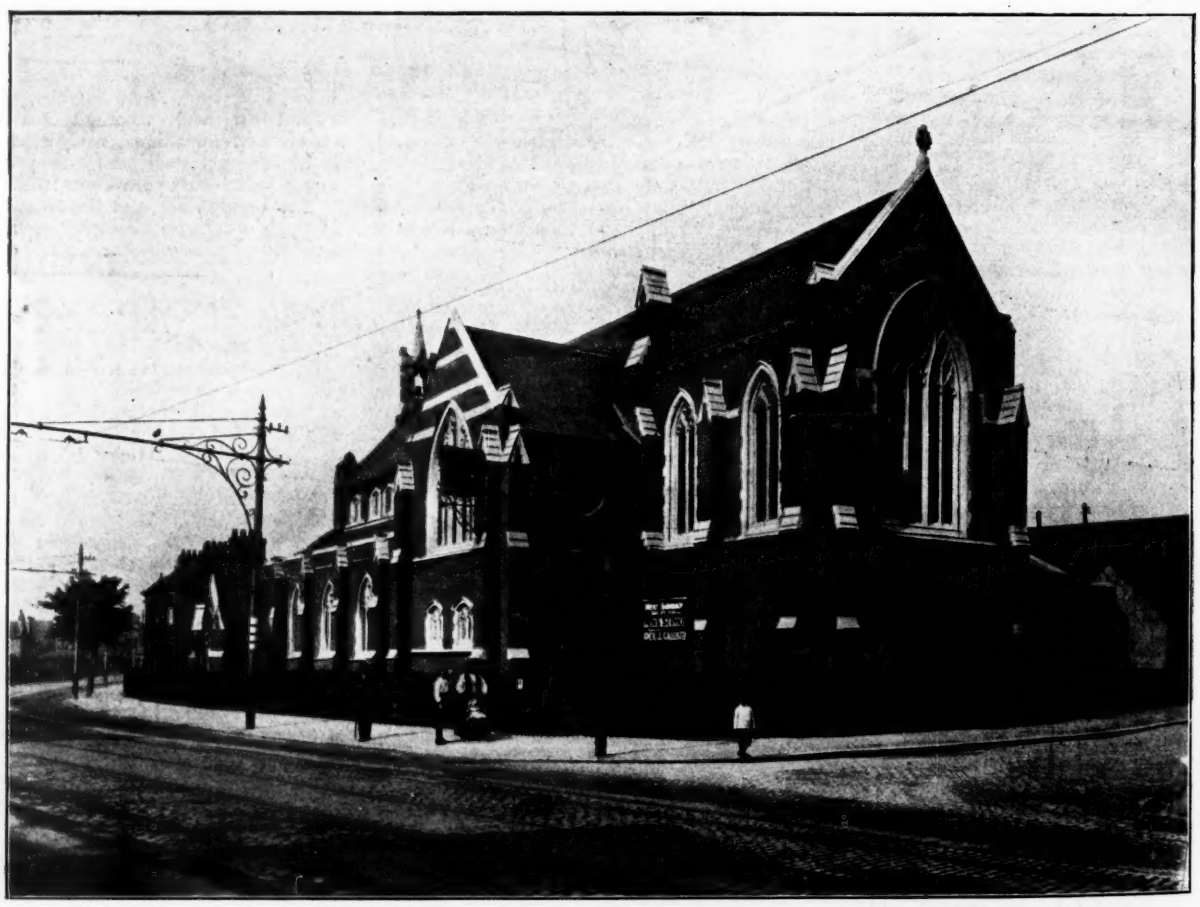
With this exceptional training, and with prospects of the brightest, he went, in 1896, to South Africa, where his life-work was found. He went into partnership with Mr. Herbert Baker in 1897. In association with Mr. Baker he designed and carried out numerous buildings

St. Christopher's Church, Sneinton, Notts.
Mr. F. E. Littler, A.R.I.B.A., Architect.

in and about Cape Town, among them being the Cathedral; the Union Parliament Buildings; the Diocesan College, Rondebosch; the Churches of St. Barnabas, St. Michael, and St. Philip; the City Club; the premises of the National Mutual Life Association of Australasia, of the South African Association, and of the Guardian Assurance Company; the laboratories of the South African College; the Rhodes Building; the De Beers Consolidated Mines Building; the Administrative Building for the De Beers Explosives Works; and the Seamen's Institute. Many private houses were built during the partnership; also the Dale College Buildings, Kingwilliamstown, and the Mother Cecile Memorial Hall, Grahamstown.

After 1910 Mr. Masey practised independently, examples of his work being the Salisbury Club, Rhodesia; the Salisbury Board of Executors Building; the Bulawayo Museum; and the Church of St. John, Bulawayo; and the Educational Buildings for the Beit Trustees at Bulawayo and Salisbury. Mr. Masey was selected, with two London architects, to submit designs for the new Salisbury Cathedral.

In 1901 Mr. Masey was elected a Fellow of the Royal Institute of British Architects, his



St. Christopher's Church, Sneinton, Notts.
Mr. F. E. Littler, A.R.I.B.A., Architect.

proposers being Messrs. Arthur H. Reid, Herbert Baker, and Alfred Waterhouse.

In 1899 the South African Society of Architects was founded to follow up the work of the Engineering and Architectural Association of South Africa, a body which, founded in 1884, came to an end in 1886 with the discovery of the Transvaal Gold Fields. Among the Committee of the new Society were Messrs. A. W. Ackermann, Arthur H. Reid (now Hon. Secretary R.I.B.A. for South Africa), and C. H. Smith, A.R.I.B.A., with Mr. Masey as Hon. Secretary. The country was in an unsettled state, and it was not until December, 1901, that the South African Society of Architects began to acquire power. Mr. Herbert Baker meanwhile had been elected to membership. In July, 1902, the name of the Society was changed to the Cape Institute of Architects, with Mr. John Parker, F.R.I.B.A., as President. Alliance with the parent body in London was arranged in 1907, the year in which Mr. Masey became President.

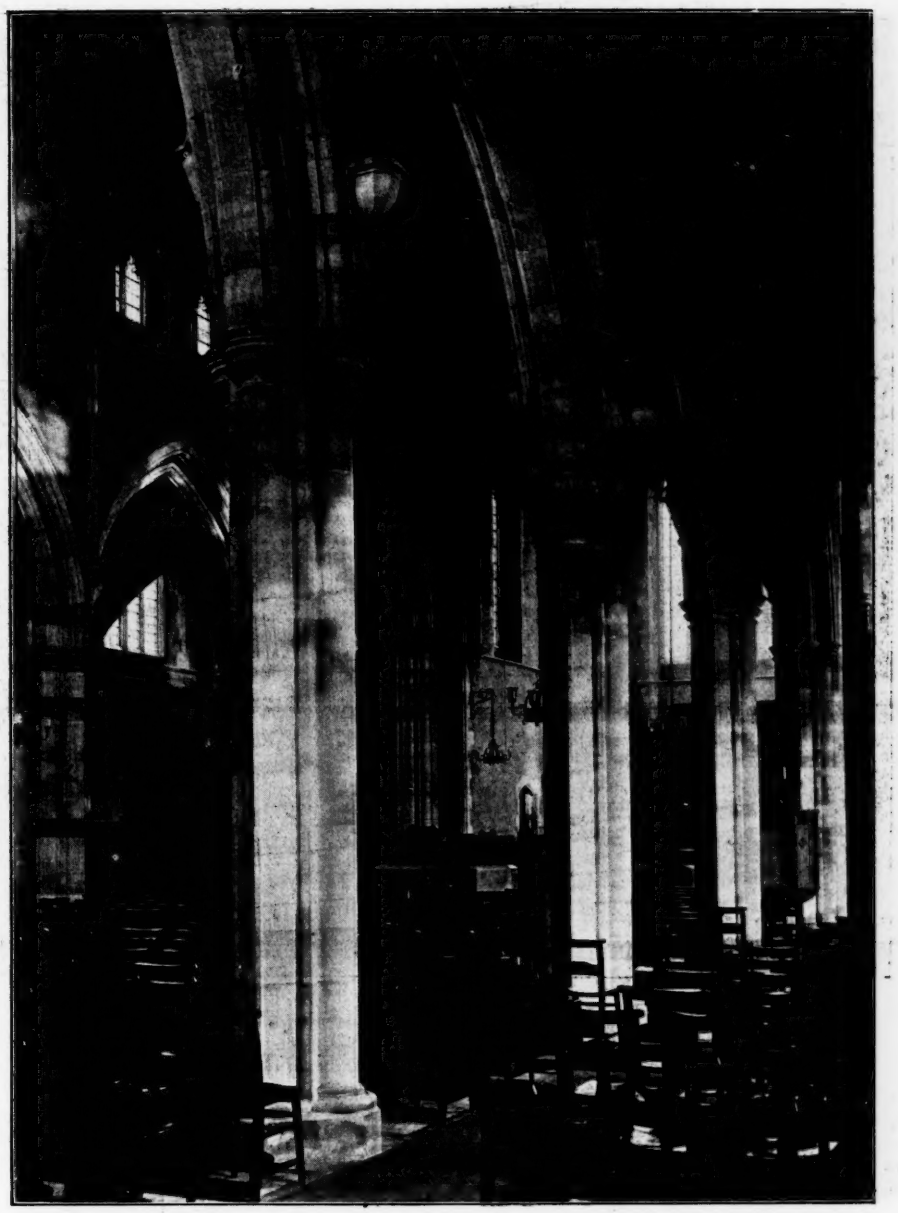
Following a visit to the Mediterranean, Mr. Masey contributed to the R.I.B.A. *Journal* in May, 1910, an essay on "Some Thoughts upon the Possible Origin of the Doric Order of Greek Architecture." In January, 1911, he read a paper before the Rhodesia Scientific Association, entitled "Zimbabwe: An Architect's Notes." This was published in pamphlet form, and recorded a visit to the ruins undertaken in 1909 at the request of the Rhodesian Government.

Besides being occupied with the details of his profession, Mr. Masey took a large share in the formation and management of the Architectural Society, which was established to promote the education of architects and the progress of architecture in South Africa. He will be missed by a large circle of intimate friends, and his work will find a place in the annals of the colony. The deceased was fifty-three years of age.

Mr. Francis E. Masey's brother, Mr. Frederick W. Masey, is in practice in South Africa, and is architect to the Diocese of Bloemfontein.

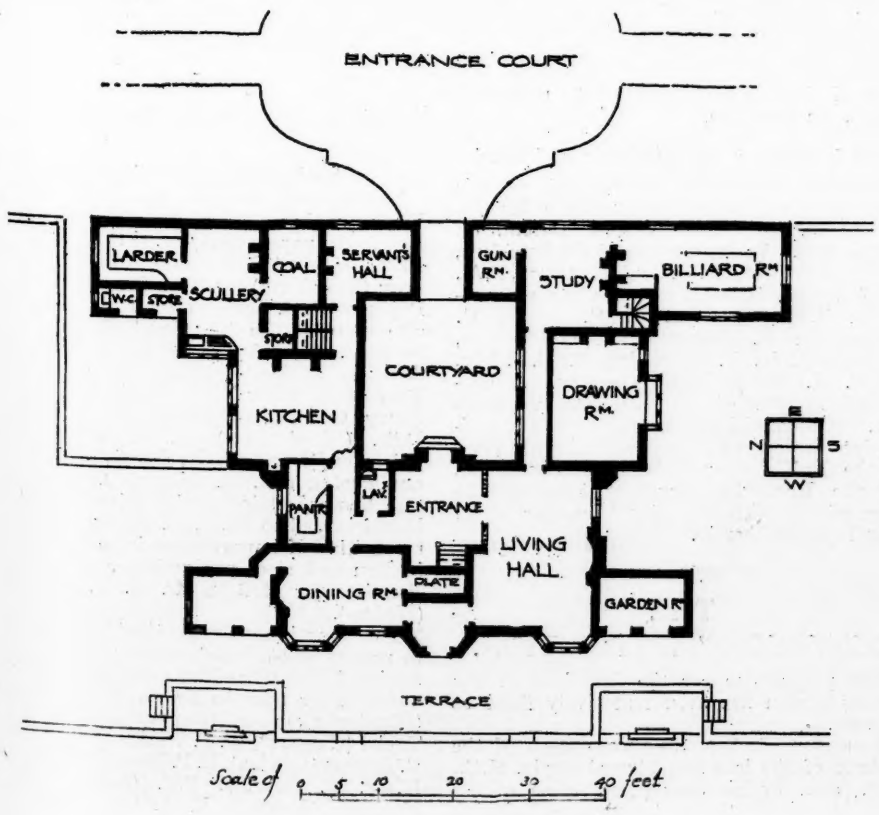
ST. CHRISTOPHER'S CHURCH, SNEINTON, NOTTINGHAM.

THIS church has been built recently in a new district to accommodate 600 persons. It is planned with a wide nave and with the transepts and chancel so arranged that the view of the east end and the pulpit is obstructed as little as possible. A feature of the plan is the bringing of part of choir well into the body of the church



St. Christopher's Church, Sneinton, Notts.

Mr. F. E. Littler, A.R.I.B.A., Architect.



Home Place, Warwickshire.

Mr. Harrison Fielding, Architect.

The exterior of the church is built in red sanded-faced bricks and Coxbench stone, the roofs being covered with tiles. In the interior the stonework is executed in light mottled Alton stone, the varying tints of red and grey giving a pleasing effect.

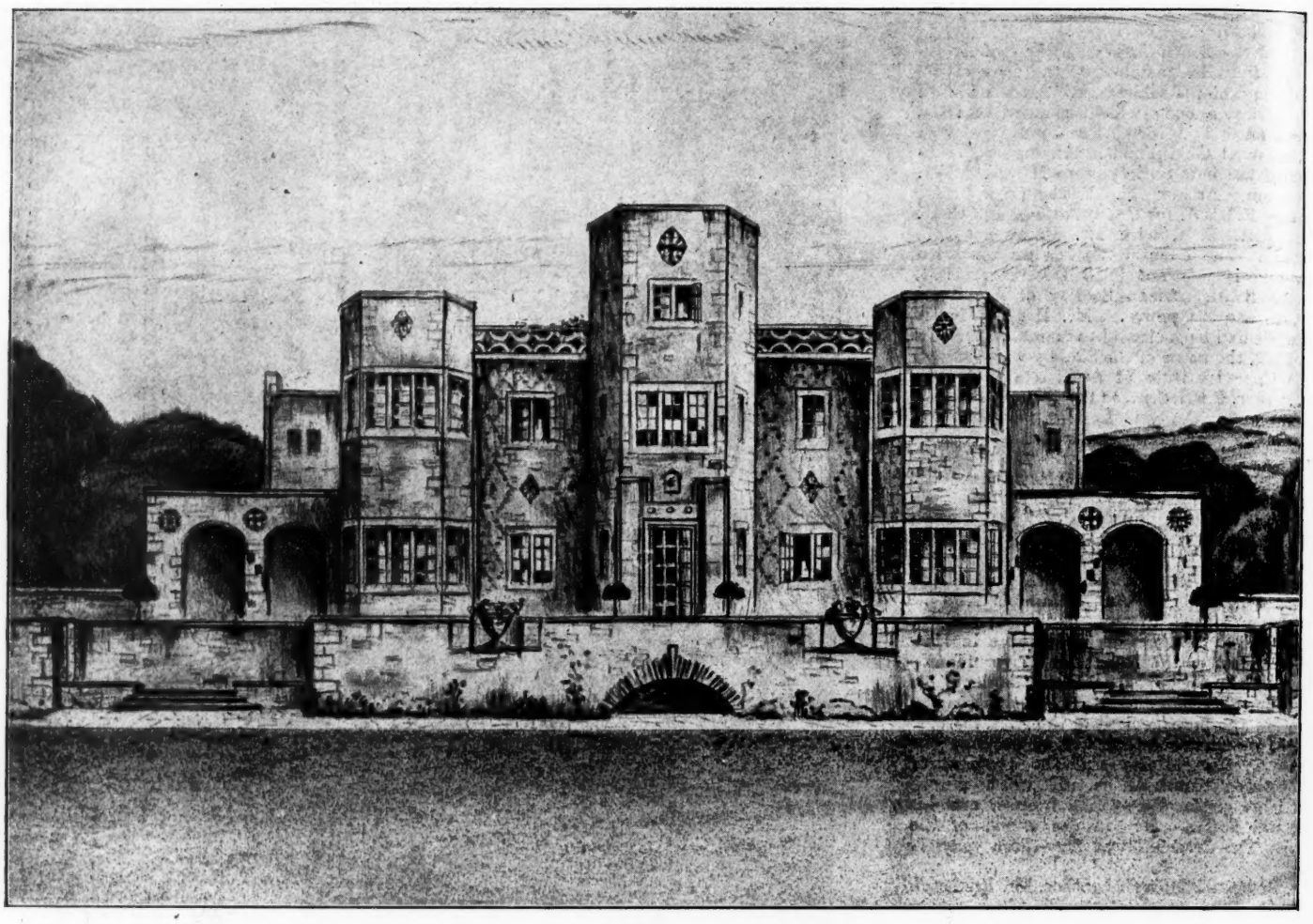
The cost of the building was about 7,000*l*. Mr. F. E. Littler, A.R.I.B.A., of Nottingham, was the architect.

A FLAT-ROOFED HOUSE.

THIS house is being erected on a wooded upland commanding distant views to the north and west. Standing in the path of the heavy winds these quarters produce, the house seemed to demand some evidence of protection and security, and a somewhat severe treatment has been given the building. Much of this, however, is relieved by panels and diaper work of coloured mosaic.

The entrance hall is approached across a paved courtyard, and leads on one side to the dining-room and kitchen offices and on the other through a panelled screen to the living-hall, with drawing-room, study, gun and billiard rooms adjoining. The study has a small staircase to a dressing-room over. Leading from the dining-room is an open-air room for meals, and flanking the house on the opposite side is a garden-room. The latter is provided with glass screens, and can be converted into a winter-garden in cold weather. On the first floor are ten bedrooms, dressing-rooms, lavatories, etc.

The whole of the roofs are flat, being constructed of concrete covered with asphalt, and on a lower and secluded portion of them a roof-garden is to be formed whence one will be



Home Place, Warwickshire.
Mr. Harrison Fielding, Architect.

able to look down on the surrounding country spread out like a map. A fives court is being arranged on another portion of the roof, also a tank for storing the rain water. The architect is Mr. Harrison Fielding, of Bedford.

THE WESLEYAN HALL, WESTMINSTER.

AN interesting constructional drawing is shown on p. 471, giving the framing for the lantern, which occurs at the top of the main dome. It will be seen that the only steelwork consists of four rolled steel joists—one being placed at each corner—and some small channels which occur as horizontal ties; the remainder of the construction being of timber well framed together with bracketing for the various moulded features. This is an excellent drawing, and exhibits a thoroughness on the part of the architects, Messrs. Lanchester & Rickards, which is far too often lacking in our modern work, where there is a great tendency to avoid the preparation of detailed constructional drawings and to leave these to the contractor or sub-contractor who is appointed to execute the work. The principle of the framing is sufficiently explicitly shown on the drawing to need no further explanation. The building was fully illustrated in our issues for October 11 and 18.

ARCHITECTURAL SOCIETIES.

Bristol Society of Architects.

A conversazione, which inaugurated the opening of the Bristol Society of Architects' winter session, was held at Church House, Clifton, the residence of the President, Mr. G. H. Oatley, F.R.I.B.A. Amongst those who availed themselves of the President's invitation were Messrs. J. Foster Wood, F.R.I.B.A., and Mowbray A. Green, F.R.I.B.A., Vice-Presidents; Messrs. G. C. Awdry, F.R.I.B.A., W. L. Bernard, F.R.I.B.A., G. C. Lawrence, A.R.I.B.A., T. H. Weston, F.R.I.B.A., Austin B. Botterill, A.R.I.B.A., and B. Wakefield, Lic.R.I.B.A., members of Council; Messrs. C. D. Ruding Bryan, J. H. Cavell, J. R. Edwards, E. H. Gibbs, A. R. Gough, A.R.I.B.A., A. Harford, C. A. Rowley, Lic.R.I.B.A., C. E. Skinner, T. H. Skinner, J. H. La Trobe, F.R.I.B.A., and C. F. W. Dening, Lic.R.I.B.A. (Hon. Secretary). During the evening a number of sketches and photographs—the outcome of the Saturday afternoon sketching tours—were on exhibition, those contributing being Messrs. C. D. Ruding Bryan, J. H. Cavell, A. R. Gough, F. H. Weston, T. H. Skinner, and C. F. W. Dening. Mr. Harvey Pridham lent a number of his drawings of Gloucestershire fonts. The President, in the course of a short address to students, emphasised the value of sketching, and offered to present a prize as an incentive.

Royal Institute of the Architects of Ireland.

A special meeting of the Council of this Institute was held at the Institute Rooms, No. 31, South Frederick-street, Dublin, on Monday last. In the absence of the President, the Vice-President, Mr. R. Caulfeild Orpen, B.A., occupied the chair, and there were also present:—Messrs. G. P. Sheridan, J. H. Webb, H. Allberry, C. H. Ashworth, L. O'Callaghan, W. Kaye-Parry, F. Batchelor, F. G. Hicks, and C. A. Owen, Hon. Secretary. A considerable amount of correspondence was dealt with. The conditions governing the competition for the design of the new Municipal Offices for the Dublin Corporation were considered, and the Hon. Secretary was instructed to communicate with the City Treasurer about several points therein.

THE SURVEYORS' INSTITUTION.

THE programme for the first half of the coming session has been tentatively fixed as follows:—

November 11, 8 p.m.—Presentation of the portrait of the late Sir Edward Boyle, K.C., M.P., etc., by his son; presentation of the Gold Medal for the best paper read during the session 1911-12; the opening address of the President, the Hon. Edward Strutt.

November 25, 8 p.m.—"Land Values Taxation: A Criticism of the Evidence Before the Departmental Committee on Imperial and Local Taxation," by E. M. Konstam, barrister-at-law.

December 16, 5 p.m.—"The Value and Marketing of English Timber," by M. C. Duchesne, Fellow.

January 13, 1913, 8 p.m.—"Notes on the Mortgage of Real Estate," by A. Laurence Cox, Fellow.

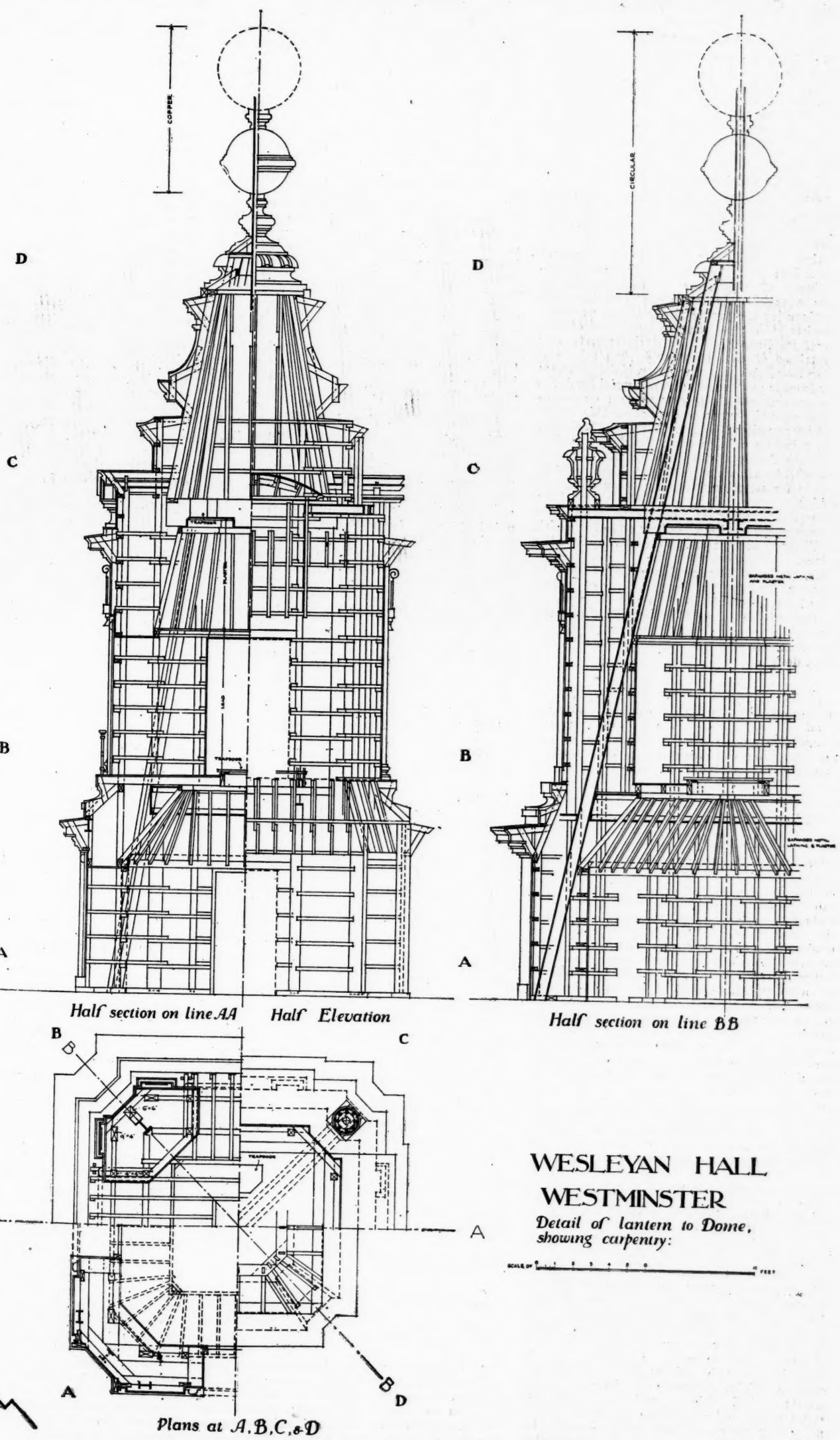
January 27, 1913, 8 p.m.—"The Amendment of Rural Building By-laws," by W. Woodward, F.R.I.B.A., Fellow, and "Some Urban Housing Problems," by M. Price Holmes, Fellow.

ENGINEERING SOCIETIES.

Institution of Civil Engineers.

The Council of the Institution of Civil Engineers have made the following further awards for papers read during the session 1911-1912:—A Watt Gold Medal to Professor W. H. Burr (New York), and the Crampton Prize to Professor R. J. Durley (Montreal). They have also awarded the following Telford premiums for papers published in the *Proceedings* without discussion during the same session:—To Messrs. Paul Seurot (New York), David Anderson and Harry Cunningham (London), S. P. Smith, D.Sc. (Birmingham), E. G. Rivers, I.S.O. (Richmond), and E. H. Morris (Manchester), and Professor A. H. Gibson, D.Sc. (Dundee). The Howard Quinquennial Prize for 1912 has been awarded to Mr. J. H. Darby (Sheffield) in recognition of improvement introduced by him in iron and steel production, and the Indian Premium for 1912 to Mr. H. H. G. Mitchell (Madras).

The Council have made the following awards in respect of students' papers read during the session 1911-1912:—The James Forrest Medal and a Miller prize to Mr. E. P. Currall, B.Sc. (Birmingham); and Miller prizes to Messrs. J. H. Taylor (Glasgow), W. P. Warlow, B.Sc. (Bristol), G. Ingram (London), E. F. Hunt, B.E. (London), H. J. F. Gourley, B.E. (London), H. G. Hoskings (London), E. A. Cross, B.Sc. (Birmingham), and J. & W. Legg (London); and the James Prescott Joule Medal to Mr. V. E. Green (Birmingham).



Half section on line AA *Half Elevation* *Half section on line BB*

Plans at A, B, C, & D

WESLEYAN HALL WESTMINSTER

Detail of lantern to Dome, showing carpentry:

Messrs. Lanchester & Rickards, FF.R.I.B.A., Architects.

GENERAL NEWS.

Professional Announcement.

Mr. John Brooke, F.R.I.B.A. and President of the Manchester Society of Architects, of 18, Exchange-street, Manchester, has taken into partnership Mr. C. Ernest Elcock, late of J. M. Porter & Elcock, of Colwyn Bay, and for the future the practice will be carried on under the style of "John Brooke & Elcock."

Buckingham Palace Front.

In Wednesday's Parliamentary Papers Mr. Bennet-Goldney asked the Hon. Member for St. George's-in-the-East, as representing the First Commissioner of Works, if the design of the proposed new front to Buckingham Palace had been approved by the First Commissioner of Works or by any responsible body of architects or artists; whether the drawings for the proposed elevation have been submitted to the present President of the Royal Institute of British Architects, to any Committee of that body, or to the President of the Royal Academy; whether, if the proposed new front is paid for out of a memorial fund, the Government will have any control or supervision over the work, and whether this House will be permitted to have an opportunity of expressing an opinion upon the designs before they are finally decided upon; whether it is proposed to allow any competing designs to be sent in for selection from any other architects of high repute; and, if not, whether any of the de-merits of some of the more recent architecture at present disfiguring the other end of the Mall are likely to be repeated in the new front of the palace.

Mr. Wedgwood Benn said the design has been approved by the First Commissioner of Works. It had not been submitted to any other person or Institute, but the Office of Works would maintain complete control and supervision of the work. It was not proposed to ask for any other design.

Designs of Public Buildings.

In the House of Commons Mr. King asked the Prime Minister, on Tuesday, whether his attention has been called to the criticism usually directed to designs accepted and plans adopted for public buildings and other undertakings by his Majesty's Office of Works; and whether, in order to give public confidence in the work of that department and to ensure the best value, taste, and style in all future public works, he is prepared to introduce some method of securing the best possible advice and general approval, either by appointing a representative consultative committee or otherwise.—The Prime Minister, in reply, said the First Commissioner is responsible for the designs of all public buildings, the erection of which devolves upon his department, and he is satisfied that, so far as ordinary buildings are concerned, no useful purpose would be served by the appointment of a consultative committee such as that suggested. The First Commissioner feels that he can rely with confidence upon the experience of his trained staff. In the case of exceptional buildings, such as the War Office and the new public offices, it has been the practice to seek the assistance of architects of eminence outside the department.

Royal Commission on Ancient Monuments.

In the House of Commons Capt. Murray asked the Prime Minister whether he was aware that at the present rate of progress the labours of the Royal Commission on Ancient Monuments would in all probability take some forty years to complete, and that within that period a vast number of monuments would have perished or have been restored beyond recognition; and whether, in these circumstances, he would consider the advisability of adding to the staff of the Commission in order that the work might be finished within a reasonable period.—The Chancellor of the Exchequer, in reply, said:—"It is hoped that the Ancient Monuments Bill now under consideration of a Joint Committee of both Houses may be amended so as to enable the Office of Works and its Official Inspector of Historical Monuments to deal with imperilled monuments as cases arise, and I shall be prepared to consider any proposal that may be made for adding to the expert investigating staff employed by the English Commission."

Calton Prison, Edinburgh.

In the House of Commons Mr. Wedgwood Benn, for the First Commissioner of Works, has informed Mr. Hogge that there is a project under consideration for removing Calton Prison, Edinburgh, and using the site for Government offices. Details were not yet worked out, for no buildings could be commenced before the matter was laid before Parliament. In any designs for new buildings care will be taken to preserve the amenities of Edinburgh.

St. George's Hall, Liverpool.

The Council of the Royal Institute of British Architects, at their meeting on the 14th inst., passed the following resolution, a copy of which was forwarded afterwards to the Liverpool City Council:—"The Council of the Royal Institute of British Architects has seen with regret the City of Liverpool's plans for altering the southern termination of St. George's Hall. The Council believes that alterations to such a building are only justifiable when inevitable, and trusts that, in view of the widespread opposition of architects to any interference with St. George's Hall, the City Council will reconsider the matter."

Our Austrian Municipal Visitors.

The visit last week to the City and the Corporation of London of Dr. Josef Neumayer (Bürgermeister of Vienna), Herr Franz Leithner (Bürgermeister of Bad-Ischl), and Herr Karel Gros (Mayor of Prague), with sixty other representatives of those municipalities, terminated with a farewell banquet on Friday evening at De Keyser's Royal Hotel. The programme included visits to the Tower and Tower Bridge, lunch at Leathersellers' Hall, a reception at the Austro-Hungarian Embassy, and a dinner at Vintners' Hall on Tuesday; visits to the City of London School, Guildhall School of Music, St. Paul's, and the Central Criminal Courts, lunch at Mercers' Hall, and a state banquet at the Guildhall under the presidency of the Lord Mayor on Wednesday; visits to the Metropolitan markets, the National Gallery, and British Museum, luncheon at the Mansion House, and a visit to the Houses of Parliament on Thursday; and on Friday visits to Burnham Beeches and Windsor Castle, where they took tea in the Orangery by invitation of the King.

St. James's Club House, Piccadilly.

Some additions are about to be made to the premises of the St. James's Club at the corner of Brick, formerly Engine, street, by Messrs. Maple & Co., Ltd. The house stands on the site of the old Greyhound Inn; it was originally styled Coventry House, having been sold by Sir Hugh Hunlock for 10,000 guineas to George, sixth Earl of Coventry, who married the beautiful Miss (Maria) Gunning. It was afterwards occupied by the Ambassadors' Club, who dissolved in 1854.

Arlington-street, St. James's.

A notable house in this thoroughfare will be offered for sale at the Mart on October 29. It is No. 5, on the east side, being the second home of Robert Walpole and his son Horace in that thoroughfare, whereof Horace writes, in 1768, to Montagu:—"From my earliest memory Arlington-street has been the ministerial street." Horace Walpole was born, 1717, in a house that stood opposite; his father removed thence in 1742 to No. 5, and the son quitted No. 5 for Berkeley-square (corner, north-west, of Bruton-street) in 1779. His father's first home in the street, as rebuilt by Kent, for Henry Pelham, was since Lord Yarborough's; the drawing-room is depicted in the second scene of Hogarth's "Marriage à la Mode." A tablet has been affixed on the front of No. 9, the residence in 1804-6 of Charles James Fox.

Relics of Volta.

Sir Henry Norman, M.P., has found in an "antiquities" shop in a small Italian town what he believes to be a genuine collection of the electrical appliances which Volta made for his experiments that led to the discovery of "voltaic" electricity, together with the original one-fluid primary battery—Volta's "crown of cups," and many personal and domestic articles used by him, as also some of his papers, letters, portraits, etc. It appears that these objects have passed from father to son, having been bequeathed by Volta to his cook and body-servant, who was the uncle of the present owner's grandfatner. Sir Henry Norman suggests that in the event of their authenticity being established the apparatus, appliances, and other articles might be purchased for presentation to the Royal Institution.

Property Sales.

The landed properties recently placed in the market comprise the following:—No. 1, Quadrille Court, Lymington, modernised under the directions and superintendence of Mr. S. J. May, F.R.I.B.A. The early XVth-century manor-house, known as Hergerst Court, with 418 acres, at Kington, co. Hereford, mentioned in "Malvern Chase," and occupied for nearly three hundred years since 1430, by the Vaughans and their descendants. The Wilderness, Earley, near Reading, and White Knights Park, formerly belonging to the Duke of Marlborough. Breccles Hall, Norfolk, 3,000 acres, of which the record begins in 1276, when the land belonged to John de Breccles; the house, built by the Woodhouses, being of the Elizabethan period. The Grove, Chigwell Row, Essex, a residence, reputedly, of Sir Francis Drake. Norton Priory, Selsey, an interesting Tudor house, by Pagham Harbour, with earthworks in which ancient British remains have been found. Birnam, on the south bank of the Tay, near Dunkeld, where the famous wood has been replanted with fir; the traditional scene of Macduff's encampment being at Court-hill in the vicinity; and The Oaks, with 180 acres, near Banstead, a house that gave its name to an historic race, having been a hunting seat of the Earl of Derby, and containing some fine work by the brothers Adam. The house was originally built by the Hunters' Club for their resort in the hunting season; Edward, twelfth Earl of Derby, made large additions to the house and stables.

BOOKS.

Modern Sanitary Engineering. Part I.: House Drainage. By GILBERT THOMSON, M.A., M.Inst.C.E. (Constable & Co., Ltd. 1912. Pp. xv. and 266. Price 6s. net.)

THE author of this book remarks in his Preface that it is not so easy to find books which are based on general principles, and which lead from these to practical applications, as it is to find those which tell merely how work is usually done. With this in mind he has endeavoured to give, first, a general indication of the requirements of a system of drainage; to deal next in some detail with the special requirements of the different parts and with the way in which these are met; and then to consider how these parts are to be combined into an effective whole. The intention is not simply to indicate what is the usual practice, but to consider the reasons which have led to that practice.

The result is an excellent book which the student would do well to read; it will save him a good deal of doubt when afterwards studying text-books which give only what is actually done in order to comply with by-laws.

The author was, we believe, one of the witnesses who gave evidence before the Departmental Committee, appointed by the Local Government Board to consider the Disconnecting Trap, whose Report, published since the book before us went to press, was noticed in our issue of September 13. He refers to the subject of that Committee's investigations and expresses as his own the view that the question of the retention of the disconnecting trap is one chiefly of workmanship, and that if "really tight drains" were universal the intercepting trap would be useless. He also appears to see no objection to the ventilation of sewers by house soil pipes. "So soon, therefore, as we reach a standard of construction which will allow the abolition of the main trap without risk, so soon should that trap be abolished." Possibly he might modify this after seeing the Committee's expressed views that the ventilation of sewers is a matter the importance of which is much over-estimated, and that the question of "smell" is not to be put aside as of no moment. Even with the present arrangements a whiff of air from the disconnected house drain occasionally is blown into our bedroom windows or drawn down our chimneys, and it is offensive enough. How much worse

would it be if the soil ventilating pipe were directly connected to the practically inexhaustible source of offence existing in the sewer. If the hint of the Report were taken, we should retain the interceptor and the high "outlet" vent and do away with the low "inlet" vent which is so often a real and constant nuisance, arranging our pipes with a view only to prevention of siphoning and to the provision of a certain limited amount of ventilation.

These questions are carefully dealt with by Mr. Thomson in the course of his earlier chapters. Then, after discussing the conditions governing the various fittings usually met with, a couple of chapters are devoted to the designing of complete systems of drainage and to the peculiar requirements of certain special classes of buildings. Then follow some forty-three pages devoted to tests, testing, and sanitary inspections; the particulars here given are of especial value, as they are to be found in very few of the ordinary text-books. Finally the disposal of sewage from isolated houses is dealt with, and the book is completed by a very good index.

Estimating, being the Analysis of Builders' Prices. By THOMAS D. L. PIPER. With forty illustrations. Part 1. (Portsmouth: The Ubique Press, Ltd., 1, Middle-street.)

WHATEVER criticism may be passed on this work, want of thoroughness will certainly not be one basis for fault-finding. For detail it is one of the most complete works we have ever had under consideration. If such may be deemed a fault, one might complain that the author has entered rather too much into detail. It is, however, easy to drop some of this in practice, and probably most of those who use this work in their studies will do so.

The work is evidently for provincial user, and those who have had experience with what may be termed "country" pricing of quantities will welcome anything that may tend to put this on a more satisfactory footing. The prices given for labour and upon which the work is based are 5½d. per hour for labour and 8d. per hour for skilled trades, except mason, which is given at 9d., and plasterers at 8d. and 9d. These strike us as low even for country towns of any size.

Notwithstanding the low prices for labour and in some cases of materials, the prices for work generally are little, if any, lower than those of good London builders in competition—*e.g.*, 15s. per yard cube for cement concrete, six of broken brick to one of cement, and 14*l.* 10s. per rod for reduced brickwork, notwithstanding the fact that he bases his prices upon a bricklayer and labourer laying an average of 700 bricks per day of ten hours, although we do not think there are many even in the provinicial towns who work ten hours a day. We think, however, his average on page 100 not quite correct if his initial figures are. He takes an average between 1,000 per day for footings, 600 for 1½-brick walls, and 500 for 1-brick walls. By simply averaging these figures he allows that there is as large a proportion in footings as in the remainder. This we are confident would not be borne out by experience.

We point out these little matters as showing that while his results may be right, according to London standards, the working seems somewhat at fault, and we think it is somewhat unfortunate that a London basis was not adopted for rates of wages. But while we would criticise the work on these grounds we must congratulate the author upon his most painstaking and careful work, a study of which will be most useful as an introduction to the analysis of prices for building work. Observation as to the time taken in various works being largely the basis of pricing, it would be a good idea if the student with this work before him verified some of the examples given.

We shall look forward with a good deal of interest to the continuation of the work, the part under notice taking us only to the end of the bricklayer's work.

Workmen's Compensation Digest. By DOUGLAS KNOCKER. (London: Butterworth & Co. 1912. xxvii., 455, and 39 (index) pp.)

THIS work contains every case of present utility or authority decided under the Workmen's Compensation Acts (1897, 1900, and 1906) and Rules in the House of Lords and the Supreme Court of Judicature in England up to May 15, 1912, and reported either before or since, and also every such case decided in the Scottish Court of Session and the Supreme Court of Judicature in Ireland, and reported up to May 15, 1912. It therefore gives every decision, whether English, Scottish, or Irish, which might be of use to those who are interested either as litigants or advocates in the great field of legislation with which it is concerned. The arrangement of the book is all that could be desired. The actual text of the 1906 Act is first set out, and then under every word or phrase which has been the subject of judicial decision or comment are given all the cases relating thereto. In some instances extracts from the more important judgments are quoted by way of illustration of the principles which the Courts have applied in their interpretation of the Act. The learned author in his Preface makes an apology for the fact that he has arranged the various cases in parallel columns so as to show at a glance those which have been decided in favour of the workman and those in favour of the employer. Though, as the author himself admits, such an arrangement is, on principle, indefensible, in that the general application of the rule forces on to one side or other of the dividing-line cases which may not definitely favour either the employer or the workman, at the same time, in our view, the great practical convenience of the arrangement more than compensates for this disadvantage. The completeness and up-to-date character of the digest renders it invaluable to employers of labour, who will certainly be able easily to learn from its pages how and in what circumstances liability towards their workmen arises. There is a good table of cases, and a very useful index, and space has been left for the noting-up of subsequent cases as and when they are decided. We can with confidence recommend the volume not only to architects, builders, and other employers of labour, but also to all who are in any way concerned with the law and practice of workmen's compensation.

Engineering and Metallurgical Books, 1907-1911: A full Title Catalogue, arranged under subject headings, of all British and American books on Engineering, Metallurgy, and Allied Topics, published during the five years 1907-1911, with their English and American prices and publishers' names. By R. A. PEDDIE. (London: Grafton & Co., 69, Great Russell-street. 1912. Pp. ix. and 206. 7s. 6d. net.)

MR. PEDDIE deserves thanks for this continuation of his useful, though probably irksome, labours. The scope of the work is well indicated by its title, and a glance through its pages gives a very good idea of the directions in which mechanical studies are for the moment being particularly directed. For instance, under the heading "Aeronautics" fifty-one works are mentioned, including a "Bibliography of Aeronautics" which itself contains a total of 954 pages. Motor boats, motor-cars and motor cycles are separately dealt with, but together account for fifty-five books, to say nothing of books dealing especially with details of ignition devices, internal combustion engines, magnetos, carburettors, etc., which are classified separately. Reinforced concrete, too, continues to inspire many, so that the author has to make fifty-two entries under this head. The subject headings of the groups are placed alphabetically in the body of the book, and a classified list of these subjects is placed at the beginning. At the end is an index of authors, editors, translators, etc.

The book is clearly printed and adequately cross-referenced, and will doubtless save much time to many who wish to see at a glance what recent literature is available upon any of the special subjects dealt with.

Redress by Arbitration. By H. FOULKES LYNCH. Fifth Edition. By ARTHUR REGINALD RUDALL. (London: Effingham Wilson. 1912. 8vo., xv. and 102 pp.)

THE first edition of this little digest of the law relating to "Arbitration and Awards," by the late Mr. H. Foulkes Lynch, was an excellent attempt to supply a handy book for consultation pending arbitration proceedings, and also to provide an elementary text-book on the subject for the use of law students. The aim of the author was entirely successful, and the work has certainly proved its usefulness to all concerned in arbitration matters, whether as arbitrators, parties, or advocates. The editor of the fifth edition has adhered to the original form, and has only made such additions and alterations as lapse of time and other circumstances have rendered necessary. The growing disinclination of commercial men to submit their difference to the decision of the Courts, and the consequent increasing tendency to seek redress by arbitration rather than by action, renders this work more valuable than ever. Architects and surveyors should find it extremely useful. There is a good table of contents, and an alphabetical list of the cases cited. The Appendix contains a sufficient number of forms for all ordinary purposes, and the index is quite adequate.

The Land Transfer Problem. By J. S. RUBINSTEIN. (London: Spottiswoode & Co. 8vo., 68 pp.)

THIS is a paper read at the thirty-seventh provincial meeting of the Law Society, held at Cardiff, September 24 and 25, 1912, which discusses fully the respective merits of the systems of registration of deeds or registration of titles as solutions of the land transfer problem. The author has on several previous occasions read similar papers on the subject, which have been mainly concerned in proving that, owing to our condition of land tenure, the attempt to introduce a workable land transfer system by the abolition of deeds and by substituting in their place the system of registration of title has failed, and was bound to fail. Mr Rubinstein approaches the question as a solicitor, and succeeds in making out a very good case for his contentions. Without expressing any opinion of our own as to the particular views enunciated, we think that Mr. Rubinstein's brochure is well worth perusal by all who are interested in land tenure and the problem of land transfer in this country.

CORRESPONDENCE.

The Architecture of the New Delhi.

SIR,—I learn from the articles in your issues of the 11th and 18th inst. on "The Architecture of the New Delhi" that an interesting discussion as to what should be the character of the architecture of the new city is being carried on. May I, as an Anglo-Indian missionary of twenty-one years' standing, be allowed to make a humble contribution to it?

I do not profess any special knowledge of architecture, but it seems to me that as this new city of Delhi marks a new departure in Indian history, and stands neither for Hindu nor Molsem supremacy, but as a commemoration of the Coronation of a greater Emperor of India than ever reigned in the past, its architecture should be as distinctive in its own way as was the case in previous centuries whenever a new conquest took place and a new Delhi was built, or an old Delhi was modified, so as to mark the event.

Mr. Havell has already advocated that the new city should be built in some indigenous style, and such a proposal will readily meet with the approval of many. But, whilst indigenous styles undoubtedly have the merit of being Oriental, they necessarily carry with them the idea of the supremacy of one or other of the great religions of India, which in this case does not apply.

It appears to me that the main idea to be kept in mind is that of Christian Imperialism, and if we desire that the architecture of the new city shall be emblematic of the actual facts of the situation which necessitates the building of a new city at all, this idea may be developed along one of two lines—the New Delhi may stand (a) either for British Sovereignty and the Christian religion, or (b) for an embodiment of the same idea underlying the principle of religious neutrality, which is the foundation upon which the "Pax Britannica" has always stood, and which would be best expressed in some eclectic style of architecture which would speak of universal brotherhood and of the fusion of all religious thought into one world-wide recognition of the Fatherhood of God.

How to embody such ideas in architecture must, of course, be left to experts and the

task may not be easy. All I would emphasise is this—the New Delhi, built by the British Government in 1912, must be no mere reproduction, however beautiful or stately, of a Delhi which some Rajput or Mogul conqueror might have built a few centuries ago—it must have a distinctive architectural message of its own for the people of India and for future generations.

If architecture can write "sermons in stone," perhaps the inspiration for the right ideal may be found in Tennyson's lines, where he represents Akbar the Great as having had a dream, and as seeing the realisation of his religious aspirations in the coming of the British and in the gradual advance of Christianity :—

I watched my son,
And those that follow'd, loosen, stone from stone,
All my fair work: and from the ruin arose
The shriek and curse of trampl'd millions, even
As in the time before: but while I groaned,
From out the sunset pour'd an alien race,
Who fitted stone to stone again, and Truth,
Peace, Love, and Justice came and dwelt therein,
Nor in the field without were seen or heard
Fires of Suttee, nor wail of baby-wife,
Or Indian widow: and in sleep I said
"All praise to Allah, by whatever hands my mission be accomplished!"

It might also be borne in mind that India is now passing from its Renaissance into a fuller life of liberty and progress. Some adaptation of the styles of architecture which marked the same period in the West might not be inappropriate, and such would certainly give the distinctive character to the New Delhi for which I plead.

I feel sure there are British and Anglo-Indian architects well able to deal with technical data of this kind, and I hope that the best men will be encouraged to put forth their best efforts, as the opportunity is altogether unique. J. P. HAYTHORNTHWAITE,

Late Principal of St. John's College, Agra.

The Church of St. Thomas, Portsmouth.

SIR,—In the interesting notice of this church which appeared in the *Builder* of October 18 there is no mention of a singularity in the planning of the choir, to which, as it makes the building one of the most interesting in the history of architectural development in England, it may be worth while to call attention.

The feature in question is briefly that, while the side aisles of the choir are divided into four bays, the central division is for purposes of vaulting treated as two only, each pair of pier arches being grouped together to form one great square vaulting compartment above. This peculiarity, though it is by no means uncommon on the Continent, is shared in England by the neighbouring Boxgrove alone, and the treatment of the scheme is precisely the same there, namely, that each pair of pointed pier arches is comprised in a great semicircular arch whose tympanum masks the triforium, while the double bay of clearstory above is lighted by a single lancet, central in position, and therefore placed above the intermediate pillar of the arcade. The only difference between the two buildings is that Boxgrove is of better material and richer and more refined detail.

No doubt one of these buildings was a replica of the other, and as the detail at Portsmouth follows that of the western bays at Boxgrove, which are plainer and later than the eastern (*Builder*, April 7, 1900), it is probable that it is the copy.

It is not a little curious that of these two churches the remote Boxgrove should be so well known and that at Portsmouth so little that no writer on English architecture has, as far as I can ascertain, mentioned it or known of its existence. Even Mr. Francis Bond says that "We have only one example of this system—the choir of Boxgrove Abbey."

A. H.

Cross Traffic.

SIR,—The method of traffic mentioned by O. B. I. T. in your issue of the 18th inst. was brought before the London County Council as long ago as 1897 by Mr. Holroyd Smith, M.I.Mech.E., who then proposed that the gyratory system of regulation should be tried at Ludgate-circus.

The suggestion of your correspondent that Oxford-circus should now be selected as "an ideal spot for an experimental application," is, no doubt, an orignial idea, but as a matter of fact the proposal was made by me in my Presidential address of 1907 to the Civil and Mechanical Engineers' Society. At that time I strongly urged the desirability of experiments not only at Oxford-circus, but also at Ludgate-circus and St. George's-circus—all these being equally suitable.

Your readers may be interested to learn that the subject was discussed once more this month at a meeting of the Society of Engineers (Incorporated), and that in consequence of the discussion there is a probability that an experiment will be made at Sollershot-circus, Letchworth Garden City, where a large number of vehicles would readily be obtained for the purpose of a practical demonstration.

I should be pleased to receive communications from any of your readers who are interested in the subject and who would be prepared to co-operate in promoting a public demonstration or series of demonstrations in the interests of the public.

W. NOBLE TWELVETREES.

195, *Bedford-hill, S.W.*

London District Surveyors' Fees.

SIR,—Referring to the note on page 457 under the heading "Westminster City Council," the whole matter has been very badly placed before the public.

When a large building is altered the fee under the Act, 1894, is equal to half the fee for a new building, but in every case the District Surveyor charges an abated fee in proportion to the work done. Thus in the case of a fee legally chargeable, 45*l.*, for a small alteration the surveyor charged 2*l.* The matter started in consequence of an alteration to a town hall in South London, and the Borough Council did not approach the District Surveyor in the proper way, or he would have charged a nominal fee.

Generally, the fee is proportionate, and no better system can be devised.

AN OLD SURVEYOR.

"A Limited Competition."

SIR,—Early in the month of August the Beckenham District Council advertised in the professional journals for architects to send in their names to enable the Council to select a limited number to submit plans for the new schools. Ninety architects have been selected, and it strikes one that the professional assessor is much to blame for taking part in such a waste of time and money.

The gentlemen sending their names naturally expected that six or eight would be selected.

FAIR PLAY.

[*** We have referred to the advertisement in question, which appeared in the *Builder*, where we find it stated that "the competition will be limited to architects who have had considerable experience in the planning of public schools." This does not convey the impression of a *limited competition* in the sense in which our correspondent has taken it, but we think that the advertisement might have been more carefully worded.—ED.]

Labour in Sydney, New South Wales.

SIR,—In July last a paragraph appeared in the Press stating that people in Sydney were starving, owing to their inability to find work. I at once sent this out to my correspondent near Sydney, and have just received his reply, the substance of which I give you below. As the information is reliable (the writer is the manager of a bank) . . . I think you would interest and inform your readers by printing this letter. W. BEECHER SMITH,

Twenty-five years Assistant and Emigration Secretary to the Y.M.C.A., Manchester.

The following are extracts from the letter :—

"DEAR SIR,—I have read the paragraph which speaks of people in Sydney being unable to find work. As a matter of fact, master-builders still tell me they cannot get a sufficiency of labour. The demand for boys for indoor labour is remarkable, because each establishment prefers to train its own staff. . . . . The class of men you send out find employment without much trouble. Of course, I refer those in the building trade to local builders, and I do not hear subsequently that they failed to get employment. I am in touch with employers of all kinds, and they report the same scarcity of suitable labour. New farms are coming into existence every day, and call for unlimited labour for clearing, fencing, building, and working. Hence men able to work need have no fear as to getting employment. R. D. A."

FIFTY YEARS AGO.

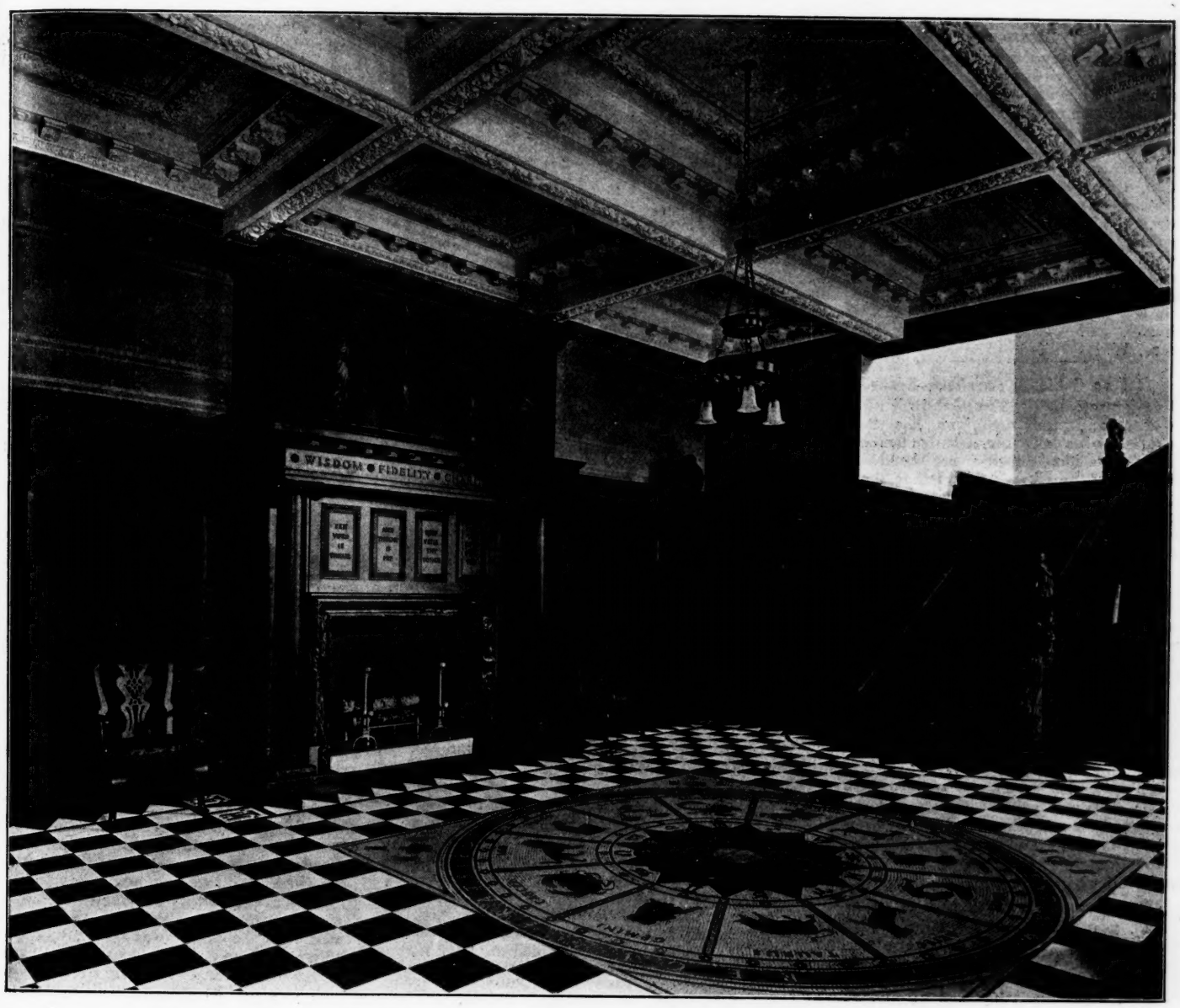
From the *Builder* of October 25, 1862.

Evil Efforts against Sanitary Improvements.

RECENTLY an inquiry which has been made by the *Lancet* into the effects of railway travelling on health has caused the expression of a variety of opinions in various journals. Amongst other singular views it has been stated that the pure air of the seashore is of little value as regards health; and one writer in an influential magazine states that impurities of air do not sensibly affect health, as is seen by the thousands who daily breathe impure air with impunity. It is said that the air of a crowded railway-carriage, which is so close that it is noxious and unpleasant to the senses, can do no harm; and that, although the air may in this way be tainted, "the rapid circulation of the air always suffices to keep up a due amount of oxygen; and, however oppressive the sensation of 'stuffiness' may be when windows of a crowded carriage are closed, the utmost physiological effect is a lowering of the respiration and a consequent lowering of the vital functions, which immediately recover their activity on fresh air being admitted."

*** The latest opinion regarding such conditions as are above set forth is contained in an address prepared by Dr. Leonard Hill, M.B., F.R.S., and Dr. Martin Flack, M.A., M.B., and delivered before the Royal Society of Arts, February 7, 1912, and later before the British Association, from which we make the following interesting extracts:—

"The good effects which result from efficient ventilation and open-air treatment are generally supposed to be due to the chemical purity of the air. They are really due to the movement, coolness, relative humidity of the air, and to the ceaseless variation of these qualities. . . . We are convinced that there is no positive evidence which demonstrates the poisonous nature of the condensation water obtained from the breath. We go further and say there is at present no trustworthy evidence of the existence of any such poison in the exhaled air. The increased percentage of carbonic acid and diminution of oxygen which has been found to exist in badly-ventilated churches, schools, theatres, barracks is such that it can have no effect upon the incidence of respiratory disease. . . . In a crowded room the air confined between the bodies and the clothes of people is almost warmed up to body temperature and saturated with moisture, so that the cooling of the body by radiation, convection and evaporation, becomes almost impossible. . . . The blood is sent to the skin and stagnates there instead of passing in ample volume through the brain and viscera. Hence arise the feeling of discomfort and fatigue. . . . There is yet another aspect of ventilation—bacterial infection. Catarrhal infections are spread by the explusion of droplets of saliva when speaking, coughing, or sneezing. A current sufficient to drive out such droplets cannot be borne by the inhabitants of a room. A moderate ventilation current tends to keep such droplets suspended in the air. In a still room they soon fall to the ground, and, clinging to floor and furniture, may be wiped up next morning and removed by the housemaid. We cannot hope to prevent infection in crowded railway carriages, theatres, chapels, schools, etc. The epidemics of common colds that sweep through the community show this only too well." We are thus face to face with the dilemma that a closed window conduces to a diminished functional activity, while an open one adds to the chances of bacterial infection.—ED.



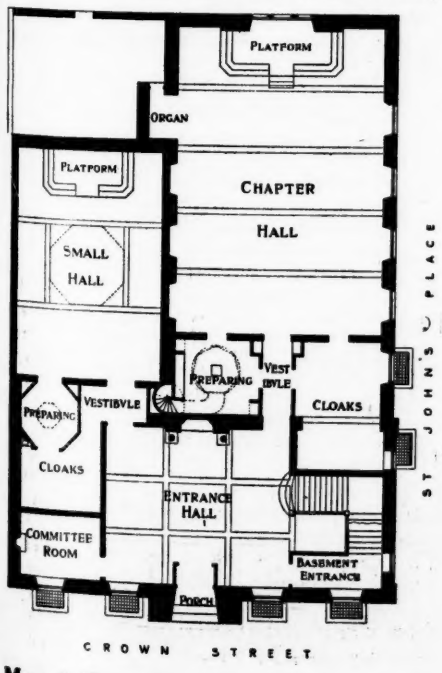
Masonic Temple, Aberdeen: Entrance Hall.

Mr. Harbourne Maclennan, Architect.

ILLUSTRATIONS.

Masonic Temple, Aberdeen.

THIS building was opened in January, 1911, with full Masonic ceremony, the Marquis of Tullibardine being the central figure. The architect was Mr. Harbourne Maclennan, of Aberdeen.

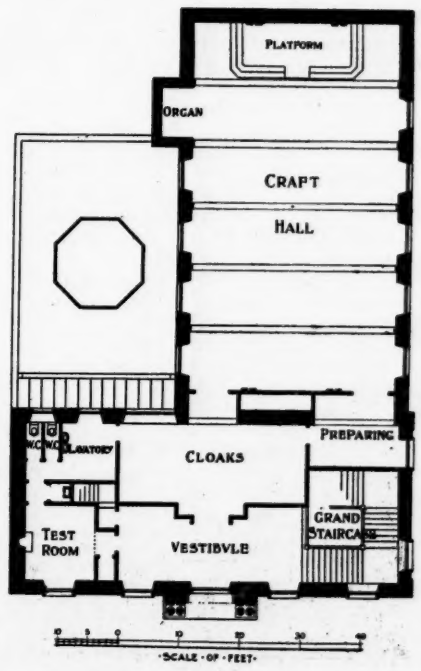


Masonic Temple, Aberdeen: Ground Floor.

Mr. Harbourne Maclennan, Architect.

Our illustrations show the chief features of the Temple.

The mason work was executed entirely in white Kemnay granite, all dressings and carvings being performed by means of pneumatic chisels. The inside panelling, furniture, and carving are nearly all of Austrian wainscot oak slightly fumed and wax-polished. The floors of the entrance-hall, corridors, etc., are of marble terrazzo, black and white marble squares, and cube marble mosaic. The ornamentation and details are based on Masonic symbols, including the large Zodiac floor in the entrance-hall. The heating is by low-pressure hot water with Ideal boiler and air-inlet radiators, and the extraction of foul air is effected by means of a Blackman electric fan and ducts. The plaster-work is finished in Duresco. The electric lighting is specially designed for Masonic ritual, and is controlled by Watkin switches. The following were the contractors—of Aberdeen except where stated otherwise:—Mr. Edgar Gauld, mason; Mr. Geo. Jamieson, carpenter; Mr. Geo. Farquhar, slater; Mr. D. Ogilvie, plumber; Messrs. Roger & Baxter, plasterers; Mr. Geo. Bisset, steelwork; Messrs. W. Briggs & Sons, Ltd., Dundee, asphalters; Mr. E. Copland, glazier; Messrs. Claud Hamilton, Ltd., electricians; Messrs. J. Cormack & Sons, Ltd., Glasgow, heating engineers; Messrs. Jas. Bannochie & Sons, marble and tile work; Messrs. J. & A. Ogilvie, oak joinery, carving, and furnishings; Mr. John Whyte, painter. The bronze figures were cast by Mr. A. B. Burton, Thames Ditton; the electric fittings by Messrs. G. E. Coy, Ltd., London. The sundial and cast lead-work were by Messrs. Geo. Wragge, Ltd., Manchester; the locks and mountings by Messrs. R. Langebeare & Co., Birmingham; and the sanitary fittings by Messrs. Shanks & Co., Ltd., Barrhead. The bronze figures and fibrous plaster were modelled by Mr. W. H. Buchan, Aberdeen. Mr. Derwent Wood, A.R.A., modelled a life-size bust of ex-Lord Provost Wilson, Aberdeen, which was cast in bronze by Messrs. Singer & Sons, Frome, its destiny being the entrance-hall of the building.



Masonic Temple, Aberdeen: First Floor.

Mr. Harbourne Maclennan, Architect.

A Country House near Guildford.

THIS house occupies a secluded site within easy reach of Guildford, in Surrey. It has a symmetrical elevation to the entrance front, while the south or garden elevation is grouped together by two gables, being in sympathy with the broad Georgian outlines of the north front.

The arrangement of the plan is simple, and needs no further explanation. The materials used for the elevations are rough hand-made red tiles for the roof. The walls are in rough-cast. The quoins and chimneys are built of small hand-made red brick. There is a formal garden, which has also been designed by the architect, Mr. R. F. Johnston, of 1, Brook-street, Hanover-square, W.

"Two Gables," Burnham, Bucks.

THE house called "Two Gables," of which elevations and plans are given, has the great advantage of a site beautifully timbered.

The elevational design has been largely governed by the client's desire that the north and south fronts should present a distinct contrast, yet be in perfect sympathy. On the garden or south front there is a quaint little court sheltered between the two main gables. This court, which is paved with old flagstones and has a grass surround, is raised three steps from the garden level, with a small lead figure in the centre. Thin hand-made red bricks are used for the chimneys and lower part of the gables on the south front. The walls generally are treated in rough-cast, and the roofs are covered with rough hand-made red tiles from Reading. The half-timbered gables are of oak left perfectly rough and unstained in any way. The timbers vary in width from 7 in. to 9 in., and are studded with oak pins. A small plan is shown of part of the formal garden. The architect is Mr. R. F. Johnston, of 1, Brook-street, Hanover-square, W.

The Architectural Treatment of the Head of the Serpentine: Kensington Gardens.

THIS was the subject set in the recent competition for the Architectural Association Silver Medal, which was awarded to Mr. R. M. Pigott.

The restrictions imposed consisted of leaving untouched all adjacent paths, both in level and direction, and retaining the original position for the pump-house on account of the well.

In this design an attempt has been made to emphasise the length of the pools by placing tall yew hedges on either side, these forming avenues about 25 ft. wide and 230 ft. long. The plan has been arranged on axial lines, giving many pleasant vistas, while the connexion between the fountains and the Serpentine is retained somewhat on the lines of the present lay-out, thus allowing the semicircular colonnade to act as a suitable termination to the lake.

The flower-beds are intended to be of the herbaceous type, while all the paths are laid down in flagstones.

MEETINGS.

FRIDAY, OCTOBER 25.

The Institution of Municipal Engineers.—General meeting. 8 p.m.

The Royal Technical College Architectural Craftsmen's Society, Glasgow.—Mr. W. H. Baxter on "Some Effects of Recent Legislation on the Building Trades."

Royal Sanitary Institute.—Mr. W. E. Fretwell on "Details of Plumbers' Work." 7 p.m.

The Institution of Mechanical Engineers.—General meeting. 8 p.m.

SATURDAY, OCTOBER 26.

The Royal Sanitary Institute.—Provincial sessional meeting, Alton.

MONDAY, OCTOBER 28.

The Architectural Association.—Mr. Lawrence Weaver, F.S.A., on "Small Country Houses of To-Day." 8 p.m.

Royal Sanitary Institute.—Mr. Edward Willis, F.S.I., on "Calculations, Measurements, and Plans and Sections." 7 p.m.

Univeristy of London (Victoria and Albert Museum).—Mr. Banister Fletcher on "Romanesque Architecture in North Italy and Sicily." 5 p.m.

TUESDAY, OCTOBER 29.

University of London (British Museum).—Mr. Kaines Smith on "Maycænæ, the Heir to Crete."

THURSDAY, OCTOBER 31.

University of London (Victoria and Albert Museum).—Mr. Kaines Smith, M.A., on "The Influence of Architecture on Contemporary Decorative Forms." 3.30 p.m.

University of London (British Museum).—Mr. Banister Fletcher on "Palaces of Assyrian Kings." 4.30 p.m.

FRIDAY, NOVEMBER 1.

Royal Sanitary Institute.—Mr. Edward Willis, F.S.I., on "Sanitary Appliances." 7 p.m.

COMPETITION NEWS.

A list of current Competitions is printed on page 490.

The Quadrant, Regent-street.

As stated in our advertisement columns this week, the Committee appointed by the Lords of the Treasury to consider the design for completing the rebuilding of the Quadrant, Regent-street, desire to inspect the designs which were submitted in the recent *Builder* competition. Competitors who prepared designs for that competition are accordingly invited to forward them to Mr. W. Fidler, Secretary to the Committee, 1, Whitehall, London, S.W., not later than Monday, November 4. Each design should be accompanied by the name and address of the sender.

Municipal Buildings, Dublin.

Mr. Albert E. Murray, A.R.H.A., F.R.I.B.A., is the assessor in the competition for the new Municipal Buildings, Dublin.

New Municipal Offices, Goole.

Mr. Ernest E. Fetch, A.R.I.B.A., has been awarded the first and second premiums (30*l.* and 15*l.*) for his two designs sent in for the new Municipal Offices, Goole. The assessor was Mr. C. B. Flockton, F.R.I.B.A.

A Unique Opportunity.

We print without comment the following advertisement from a newspaper, omitting the name of place, etc., addressed "To Architects":—"The Committee of the . . . invite tenders from fully-qualified architects for preparing schemes for developing a site at . . . upon which they intend erecting a library, institute, billiard-room, swimming-bath, etc., at an estimated cost of 5,000*l.* The architects sending in their tenders are to submit two prices:—1st, for preparing plans, specifications, personal supervision of the work, and all necessary details required in the carrying out of the scheme, and also for the preparation of the bills of quantities; 2nd, for carrying out the whole of the work above mentioned with the exception of the bills of quantities. The Committee reserve the right to accept the tender of an architect for carrying out the whole of the work, exclusive of the preparation of the bills of quantities, and to appoint a separate quantity surveyor to take out the bills of quantities. The Committee do not bind themselves to accept the lowest or any tender. . . ."

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday, in the County Hall, Spring-gardens, S.W., Lord Cheylesmore, Chairman, presiding.

Lambeth Bridge.—A recommendation was made by the Improvements Committee that application should be made to Parliament, in the session of 1913, for authority to reconstruct Lambeth Bridge as a steel arch bridge 48 ft. wide, at an estimated cost of 240,000*l.* The Committee in presenting the report accompanying this recommendation, referred to the circumstances under which a similar scheme was rejected by Parliament. The main objections to the scheme in Parliament were that the amenities of the Houses of Parliament would be affected by the architectural design of the bridge, that the bridge was too narrow, and that the proposed gradient (1 in 20) was too steep. The Committee stated with reference to the first objection, that the estimate included 20,000*l.* for the decoration of the bridge, a sum which they had been advised was sufficient to allow a satisfactory scheme of architecture. Referring to the question of width, it was stated that the bridge was not part of a main traffic route, and it would be useless to construct a bridge wider than 48 ft. unless Horseferry-road, which is only 40 ft. wide, were widened its whole length. Difficulties in decreasing the gradient were also pointed out and this appeared to the Committee satisfactory, having regard to the rapidity with which mechanical traction has superseded horse traction.

The Committee's recommendation was adopted.

St. Paul's Bridge.—The Highways and Improvements Committees presented a joint report recommending that authority be sought in the session of Parliament for 1913 for construction of tramways from Southwark-street over the proposed new St. Paul's Bridge to a point near the most western end of Cheapside, together with a shallow underground subway. After a short discussion the further consideration of this question was postponed till the next meeting of the Council.

"The Architectural Treatment of the Head of the Serpentine."
A.A. Silver Medal. Awarded to Mr. R. M. Pigott.

MONTHLY REVIEW · *of* · ENGINEERING.

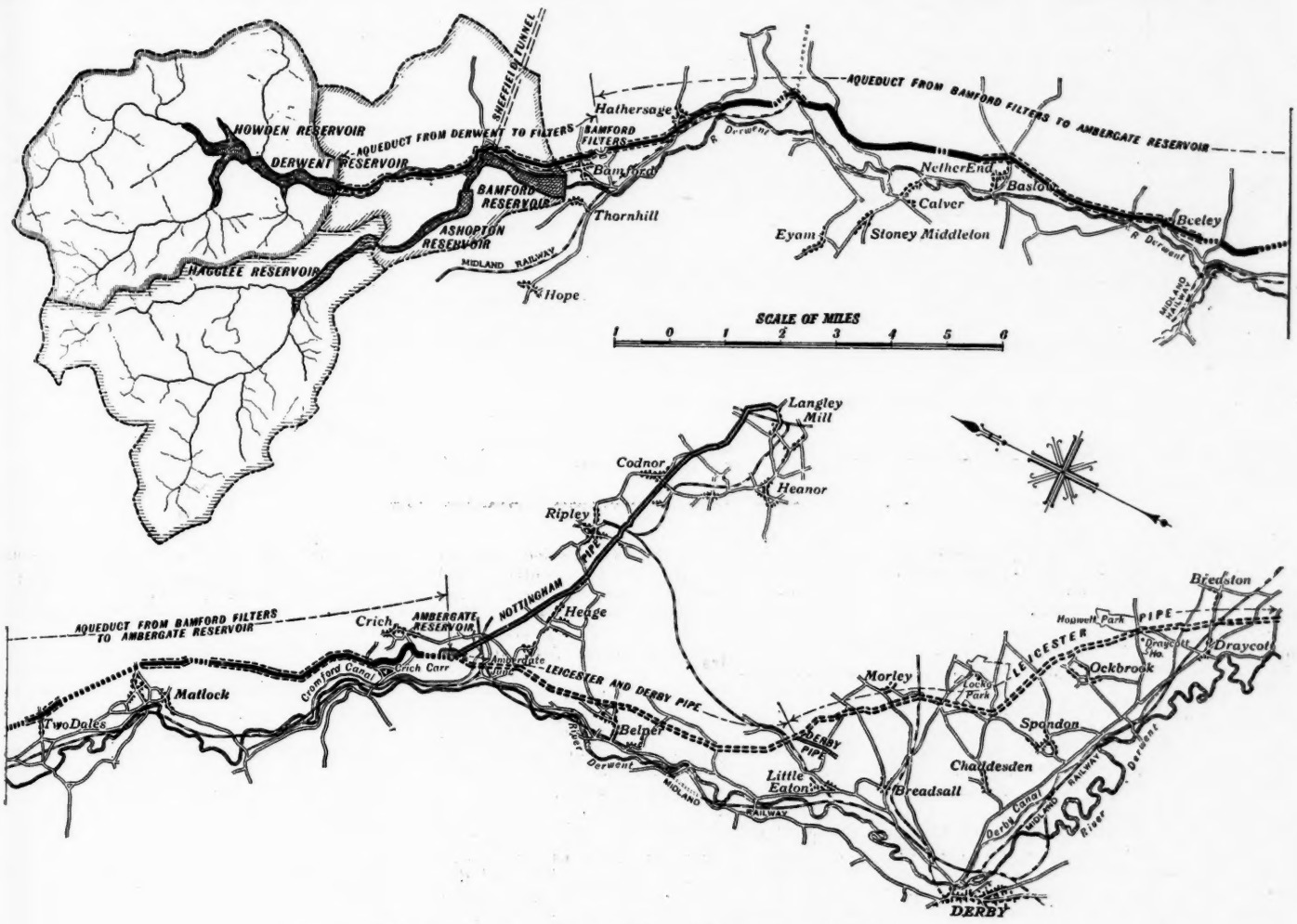


Fig. 1. Derwent Valley Waterworks: General Plan.

DERWENT VALLEY WATERWORKS.

LAST month the great waterworks undertaking known as the Derwent Valley Scheme was formally inaugurated by the official opening of the sections so far completed.

The works have been under construction for the period of about twelve years, the cost up to date having been three and a half millions in round figures. As the entire undertaking involves a total expenditure of seven millions it will be understood that a very large amount of construction work still remains to be executed.

The project is the outcome of the proposals made in 1898 by the corporations of Derby, Leicester, and Sheffield for the control of the upper waters of the River Derwent and its tributary, the Ashop. Each of the bodies mentioned was anxious to acquire for itself the rights in question, and, in addition to the mutual opposition of these three, all of them were opposed by the corporation of Nottingham and the County Councils of Derbyshire, Leicestershire, and Nottinghamshire.

After the matter in dispute had been referred to a Parliamentary Committee the various authorities were advised to submit a joint scheme. This was done, and resulted in the passing of the Derwent Valley Act of 1899, establishing the Derwent Valley Water Board as the controlling authority.

The total yield of water is estimated at 33·3 million gallons daily, and supplies will be distributed in equitable proportions to the various authorities concerned, the ultimate supplies being approximately as follows:—

Leicester	9·8 million gallons.
Derby	6·8 "
Sheffield	6·8 "
Nottingham	3·9 "
Derby County	5·0 "
Nottingham County (until 1970)	1·0 "

The ultimate scheme includes the construction of five reservoirs for impounding the waters of the rivers Derwent and Ashop, about 100 miles of aqueduct for distribution of the water to various constituent authorities, some 15 acres of filter beds at Bamford, and a service reservoir at Ambergate.

Three of the impounding reservoirs will be on the RiverDerwent, and are described as the Howden, Derwent, and Bamford reservoirs, while the remaining two will be on the River Ashop, and are described as the Hagglee and Ashopton reservoirs. For the first instalment of the works, however, only the Howden and Derwent reservoirs are required.

In the subjoined table we give particulars of the reservoirs and dams:—

Fig. 1 is a plan showing the main features of the complete project, by which it will be seen that the impounding reservoirs are grouped on high ground in the Peak district.

The watershed, having an area of 50 sq. miles, lies at an elevation of from 500 ft. to 2,000 ft. above sea level, and the average rainfall is about 46 in. As the watershed is practically uninhabited, the water is of excellent quality as regards purity, and, as usual in the case of moorland collecting grounds, it is free from hardness.

The compensation water to be returned to the rivers in accordance with the decision of

DERWENT VALLEY RESERVOIRS AND DAMS.

Name of Reservoir.	Watershed Area.	Reservoir Area (Full).	Reservoir Capacity.	Water Level Above O.D.	Reservoir Length.	Dimensions of Dam.	
						Height.	Length.
	Acres.	Acres.	Mill. Gals.	Ft.	Miles.	Ft.	Ft.
Howden	9,321	157	1,940	870	1¼	118	1,070
Derwent	3,899	183	2,000	776	1¼	114	1,110
Hagglee	10,987	178	2,160	806	2	136	980
Ashopton	1,257	141	1,472	675	2	103	840
Bamford	6,,82	242	2,495	585	2¼	95	1,950

The main aqueduct connects the Howden and Derwent reservoirs with the service reservoir at Ambergate, the course of this conduit having been diverted on the recommendation of the Engineer to the Water Board, Mr. Edward Sandeman, M.Inst.C.E. The alteration, which was sanctioned by Parliament in 1904, had the effect of reducing the length of the aqueduct by 1¼ miles. Further, by permitting the mains to be carried over higher ground, the alteration justified the use of thinner pipes than would otherwise have been necessary, the result being the saving of some 6,000 tons of cast-iron.

Parliament is equal in amount to one-third of the total available supply, leaving more than 33 million gallons at the ultimate disposal of the Water Board.

After the appointment of Mr. Sandeman as Engineer to the Board in 1900, and the revision of the original project, the first item of work undertaken was a construction railway 7 miles long from the Midland system at Bamford to the site of the Howden reservoir. This line starts about half a mile west of Bamford Station, and runs up the western side of the Derwent Valley, terminating at the Howden dam. It has a maximum gradient of 1 in 40, and a ruling gradient

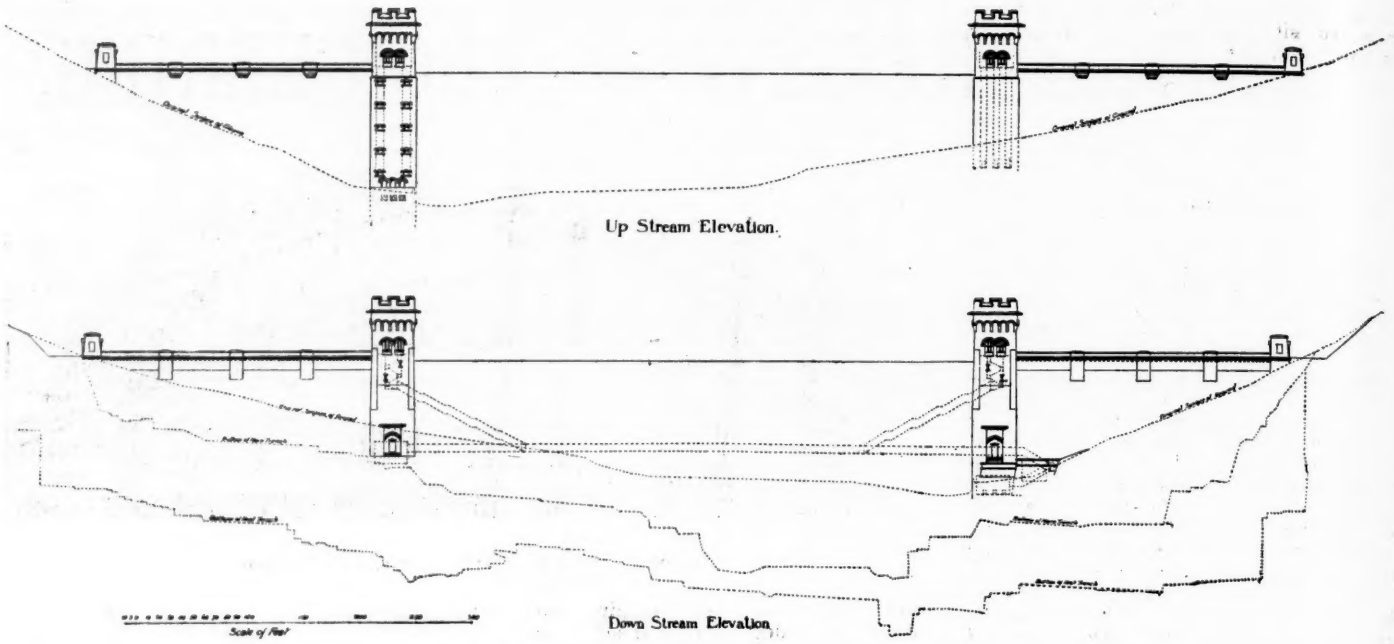


Fig. 2. Derwent Valley Waterworks: Howden Dam.

of 1 in 100. Three valleys are crossed on timber trestle viaducts, the largest being 70 ft. high by 750 ft. long.

The offices for the engineering and clerical staff of the Water Board are established at Bamford, close to the junction between the Midland Railway and the branch line mentioned above.

At Birchinlee, halfway between the Howden and Derwent dams, a village was built at a cost of 32,000*l.* to accommodate the workmen and their families. The buildings are of timber covered with corrugated-iron and lined inside with boarding.

In addition to dwelling-houses the village includes a village hospital, an isolation hospital for infectious diseases, a canteen, a doss-house, a school building, used for religious worship on Sundays, and a public building containing a large recreation-hall, reading-room, billiard-room. The hall is provided with a stage, for the purposes of concerts, dramatic performances, and other entertainments. The village also contains public baths, and is provided with water supply and drainage systems. The population in February last was about 960, but was reduced to 765 in August this year.

The principal works included in the first instalment of the system are:— The Howden and Derwent reservoirs: the pipe line from Howden to Derwent, 1¾ miles long; the main aqueduct from Howden to Ambergate service reservoir, comprising 3·7 miles of 6-ft. 3-in. tunnels, 7 miles of cut and cover, and 17·4 miles of 45-in. diameter pipe; an aqueduct from Ambergate to Sawley, a distance of 46 miles, this conduit being of 40-in. diameter pipes as far as Coxbench, near Little Eaton, where a branch is taken off by the Derby Corporation, and of 33-in. diameter to the Trent at Sawley; and a 29-in. pipe line, 8 miles long, from Ambergate to Langley Mill for the supply of Nottingham. The instalment also includes short branches for conveying the Sheffield supply to the entrance of a tunnel constructed by the Corporation of that city at Lady Bower, and to take the Derby supply from Coxbench to Little Eaton; and the Ambergate service reservoir, the little Eaton service reservoir, and the Bamford filter beds.

The Howden and Derwent dams are of masonry, and generally similar in design and construction. We give in Figs. 2, 3, and 4 elevations and photographic views of the Howden dam, and from these illustrations it may be seen at a glance that the work is highly creditable to the engineer, Mr. Sandeman, and his architectural adviser, Mr. W. Flockhart, F.R.I.B.A.

We think we ought to congratulate Mr. Sandeman on realising, as he evidently did, that in a great work of this character it was necessary that proper architectural expression should be given to it, and the result of the collaboration between engineer and architect in this case proves Mr. Sandeman's wisdom in this direction.

Both of the dams were carried out by administration in preference to contract, and are built of millstone grit in large rough blocks, the spaces between which are filled with 1 : 6 concrete, and the upstream and downstream sides are faced with dressed millstone grit.

The stone was obtained from Grindleford, about 6 miles from the Derwent dam, and was brought to the site by rail. This stone possesses the important advantages of being easily quarried, economically worked, and of hardening on exposure to the weather.

The foundations of both dams are in the Yoredale series of the carboniferous system, consisting of alternate beds of shale and sandstone, the strata being broken and distorted very considerably below the surface of the ground. Consequently it was necessary to sink the foundations to the great depth of 68 ft. below the river bed in the case of the Howden dam, and, as the rock was not watertight, a narrow trench, 6 ft. wide, was excavated on the north side of the foundation to the depth of 125 ft. below the river bed, and filled with concrete so as to form an impervious apron to prevent the percolation of water below the main body of the dam.

Further, as the hillsides were found in 1908 to be anything but watertight, wing trenches have been sunk for a distance of about 1,000 yds. along each side of the valley, filled in with concrete, and connected up to the watertight apron. These wing trenches are 5 ft. wide and range from 70 ft. to 190 ft. deep.

At the Derwent dam a similar foundation apron was formed and carried into the hillsides for a distance of 500 ft. at each end of the dam to prevent water from working its way round.

Construction on the Howden dam was commenced in November, 1901, and on the Derwent dam in July, 1902. The material excavated was removed partly by cranes and partly by the aid of cableways. The latter were erected essentially for the purpose of feeding the cranes with stone and concrete after building work had begun, but it was found convenient to employ them in connexion with the work of excavation.

Two cableways were provided at each dam, the longest spans being 1,525 ft. between supports. The cables were suspended over the valley at a height of about 150 ft. above the river and passed over timber towers at either side of the valley. The main cables are of 7-in. circumference and capable of carrying loads up to 6 tons.

The towers shown in our illustrations rise 50 ft. above water level, and are in communication by means of a subway passing

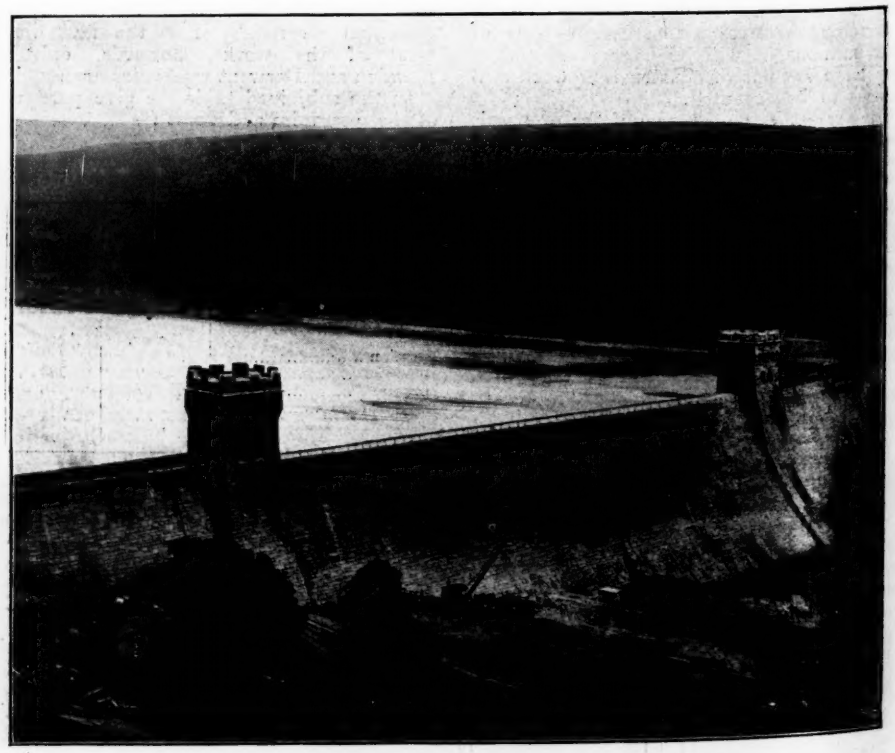


Fig. 3. Derwent Valley Waterworks: Howden Dam and Reservoir.

through the heart of the dam. In these towers are situated the outlet pipes for supply purposes and for emptying the reservoir when necessary. The valve chambers are situated in the lower portion of the towers. Similar towers are included in the Derwent dam.

Between the valve towers of each dam there is a wide spillway, over which surplus water flows in a cascade in times of heavy rain.

A short distance below the site of the future Bamford dam are the filter beds for the treatment of all water except that to be supplied to the Sheffield Corporation. The plant comprises about ¾ acre of rough filters and 4¾ acres of sand filters.

The roughing filters contain from 12 in. to 16 in. of gravel, varying in gauge from ¼ in. to ⅝ in. and resting on perforated plates of concrete. These filters will be cleansed by means of compressed air on the Puech-Chabal system, the air being introduced into the water below the perforated plates and blown upwards through the filtering material. A small stream of water will carry away impurities removed to the drains.

The sand filters contain 2 ft. of sand and 13½ in. of gravel resting on hollow bricks, each filter being provided with gauge and automatic apparatus for recording the outflow.

After passing through the two classes of filters the water flows into a clear-water reservoir with a capacity of 6,000,000 gallons, whence it flows to the covered service reservoir at Ambergate.

Situated on high ground at Ambergate, 28 miles south of the Derwent dam, the covered service reservoir, with a capacity of 28,000,000 gallons, is established for the purpose of controlling the services to the various districts, and also for providing a reserve in case temporary interruption of the main supply should occur.

As at present built, the reservoir forms only one of three portions of the complete work. It measures 640 ft. long by 360 ft. wide by 23 ft. deep from water level to the bottom. The quantity of earth excavated for its construction amounted to 200,000 cubic yds.

The floor and walls are of concrete, with a lining of asphalt, and the flat roof is of reinforced concrete, carried by steel beams supported on brick columns. To facilitate the cleaning and emptying of the reservoir a division wall 10 ft. high, has been built across the middle.

From the top water level of Howden reservoir the fall to the Ambergate service reservoir is 230 ft., the siphon pipes across the intervening valleys rising and falling as much as 370 ft. in some places

The instalment comprised in the works

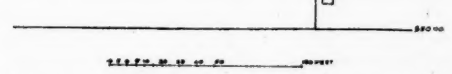


Fig. 5. Derwent Valley Waterworks: Section of Howden Dam.

briefly described above will be capable of yielding about 13,000,000 gallons of water daily, and the output of the second and third instalments will be about 10,000,000 gallons each. In the second instalment the Hagglee reservoir is included, the Ashopton and Bamford reservoirs coming in the third instalment.

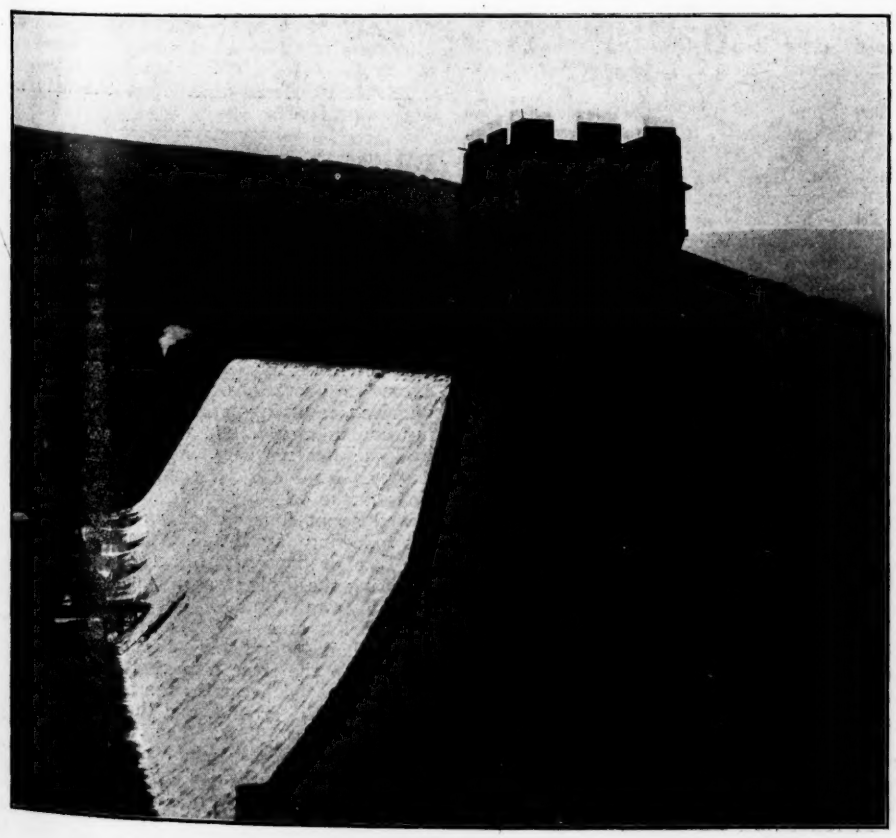
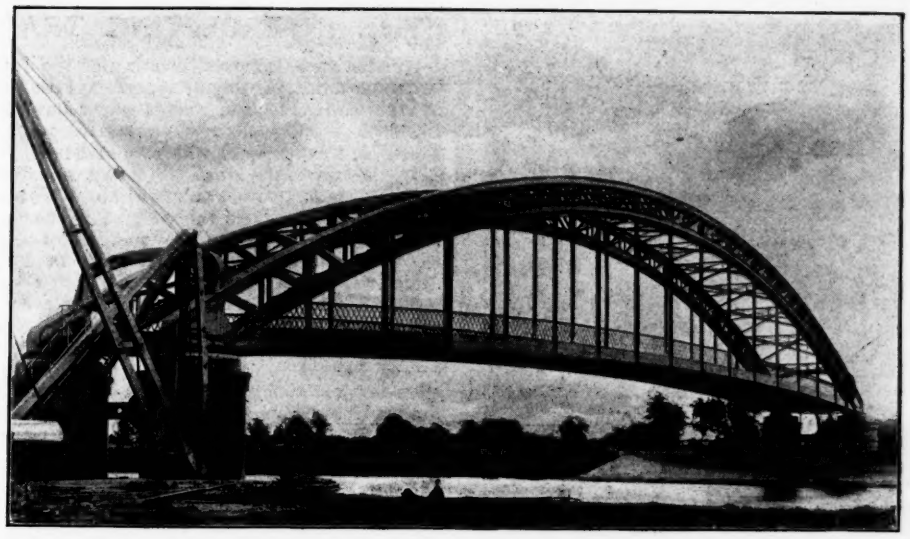


Fig. 4. Derwent Valley Waterworks : Howden Dam.



Bridge over the River Trent, 220-ft. Span.

LEICESTER CORPORATION DERWENT VALLEY WATER SUPPLY.

UNDER the Derwent Valley Water Act of 1909 the Leicester Corporation have authority to execute local works in connexion with the general scheme described in our previous article.

These works were designed by and constructed under the direction of Messrs. Everard, Son, & Pick, civil engineers, of Leicester, at a total cost of about 250,000*l*.

As previously stated, the supply for the town of Leicester is taken from the main aqueduct of the Derwent Valley Water Board at Sawley, which is 2 miles to the west of Trent Station, the local pipe line crossing the River Trent and passing south of Loughborough to Hallgates, a distance of 14 miles.

At Hallgates a covered service reservoir, with a capacity of 2,000,000 gallons, had already been constructed as a part of the existing waterworks system of the town, and the storage capacity at the same place has recently been increased by the completion of a second reservoir of the same size.

The Leicester aqueduct in reality forms the southern portion of a continuous pipe line, 29½ miles long, from the Ambergate reservoir to the reservoirs at Hallgates, and which is probably the longest siphon in England.

With the exception of river, stream, and railway crossings, the Leicester pipe line consists entirely of cast-iron. The pipes are in 12-ft. lengths, with a constant exterior diameter of 35½ in., the interior diameter varying with the thickness of metal, which is governed by the pressure to be resisted.

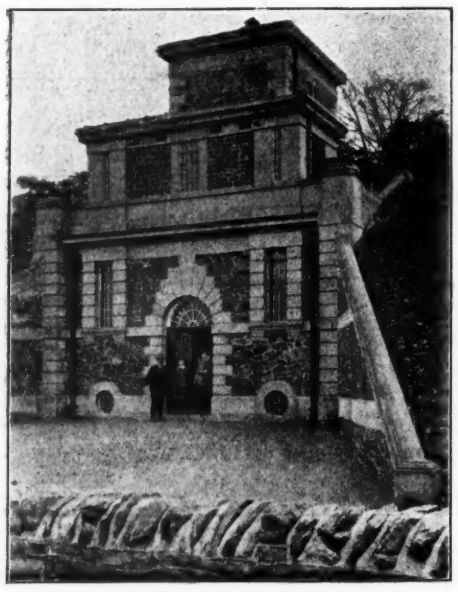
The socket joints were all "solid run" with lead, an inverted ring joint having been used for this purpose. Flange joints are made with a gutta-percha ring in the grooves.

Two lines of pipes have been laid through the valley of the Trent, although one is of sufficient capacity for conveying the water to be supplied by the first instalment of the general undertaking. It was considered necessary to lay the mains in duplicate owing to the high pressure on the pipes, to the fact that the gravels in the Trent Valley are always saturated with water to within 3 ft. of the surface, and to the difficulties of access in times of flood.

After the pipes had been laid they were tested in sections to a pressure of 50 lb. per square inch above the static head, and it is satisfactory to note that no breakages have taken place in any of the pipes or fittings.

Automatic stop valves are placed at Sawley and at Hallgates, and reflux valves are provided at intermediate points. Sluice valves of 30-in. diameter, with a 6-in. by-pass on the body of the valves, are fixed at distances of about one mile apart, dead weights, relief valves, and double air valves being placed where required.

The river, stream, and railway crossings



Hallgates Service Reservoir: View of Valve House.

are made in steel pipes of 30-in. diameter. In the case of the River Trent the pipes are carried upon a bridge of 220-ft. span, and small streams are spanned by the pipes themselves.

The service reservoir at Hallgates measures 200 ft. long by 106 ft. wide, and the depth of water is 16 ft. The foundations were excavated in the hard Pre-Cambrian rocks of Charmain series. This material furnished excellent aggregate for the concrete of which the walls were mainly constructed. The interior of the reservoir is lined with asphalt protected by brickwork, and the roof is formed by a series of groined arches.

We give a view of the steel bridge for carrying the pipe lines over the River Trent. This bridge, which is of the bow-string type, with vertical suspenders, crosses the river in one span of 220 ft., and allows a clear headway of 17 ft. above the normal water level, so as to allow ample headway for barges when the river is in flood.

The steel girders are carried upon brick and concrete foundation-piers enclosed in cast-iron cylinders, which are carried down to solid red marle, encountered at a depth of 21 ft. on the north side and 22 ft. on the south side below the water line. As a considerable quantity of water was met with in sinking the cylinders and removing the earth from the inside the work was finally completed with the assistance of compressed air. The bridge is designed to carry four pipe lines, two for immediate use and two for future requirements. The towing path is carried round the cylinder on steel cantilevers, the horse track being of cement covered with asphalt.

The contractors for this bridge were the Cleveland Bridge and Engineering Company, Ltd., of Darlington, by whom the work was commenced in the autumn of 1906 and finished in 1907.

The general contractors for laying the pipe lines and building the service reservoir were Messrs. Jowett Bros., of Burscough, and Messrs. R. H. B. Neal, Ltd., of Plymouth.

End View of Trent Bridge, showing 30-in. Mains covered by Bonnets.

THE INTERCEPTING TRAP.

AT the annual general meeting of the Institution of Municipal Engineers, on the 11th inst., Mr. H. C. H. Shenton read a paper on "The Local Government Report on the Intercepting Trap," in the course of which he said:—

It is probable that as a result of the evidence brought forward the Local Government Board will alter their Model By-Laws to the extent of permitting, or even of demanding, the omission of intercepting traps in house drains.

The sanitary expert and the engineer in private practice view the matter from a special standpoint. Their knowledge is to a great extent limited to the drainage of the better-class houses, and they have, as a rule, a very limited knowledge of the conditions which exist in the mass of houses of the working classes. Neither have they the drainage of whole towns and districts under their control. They are, therefore, more likely to be surprised at the conclusions of the Report than those men who have for years made a daily study of the conditions which exist in the sewers and drains of a town taken as a whole.

The private engineer who is a sanitary expert may design systems of drains perfectly, and may see to it that these are absolutely well constructed, properly ventilated, and flushed. Moreover, he will very likely be able to see that they are cleaned periodically, and that they are frequently inspected. He may take special steps to avoid the troubles which are mentioned in the Report. He may regard the blocking of an intercepting trap on his system as a thing never likely to occur, and, moreover, he will, without doubt, take such steps as will prevent any possibility of nuisance or danger to health, even if the trap does get clogged.

It is also quite reasonable to imagine that the owner of property who has spent so much money on his drainage system would object to allow the sewers, which are not as clean as his drains, to be ventilated through them, but such cases are the exception and not the rule. The sanitary expert is better acquainted with these cases than with the drainage system of ordinary houses, and arguments in favour of the intercepting trap which are based on the existence of the perfect system, designed regardless of cost, have practically no bearing upon the present case.

A considerable section of the Report is devoted to the demonstration of the fact that the importance of sewer ventilation, and even of drain ventilation, is not as great as is generally imagined. Apparently there is no reason to omit the intercepting trap for the better ventilation of sewers.

There is, however, one great and absolute objection to the trap, and that is its liability to become stopped up. The evidence brought forward in the Report that this is so is overwhelming, and herein lies the need for alteration in the general practice.

There is one point with which the Report deals somewhat too lightly, in the author's opinion, and that is the value of the trap as a barrier against rats. The Report tells us that Mr. Patten Barber gave evidence to the effect that he had seen rats chased into the inspection-chamber of a drain, where they escaped into the sewer through the trap, and conversely that Mr. Woods, Sanitary Inspector of Willesden, saw three or four rats come up from a sewer through an intercepting trap.

The author has recently had experience in Kensington of rats coming up through holes in the ground on the sewer side of a house interceptor. The examination proved that the connexion was an old brick barrel of a defective nature, through which the sewer rats came. Although it was evident that the rats came up close to the interceptor, it did not appear that they had entered the house drains. The connexion has now been repaired, and it has been assumed that the trap will exclude the rats from the house drains. If rats come through traps, how is it that they are practically unknown in London houses except where the drains are untrapped? In the author's memory, in the days when intercepting traps were rare, there was another trap which was very much in evidence—viz., the domestic rat trap, which was as common then in our houses as the domestic mouse trap is now. To what is the change attributable?

Again, though the author has frequently seen rats in sewers, he has never, during twenty years' experience on and off of house drains, seen a rat on the house side of the interceptor, though in untrapped drains he has seen them. The fact that rats have been known to pass through traps under certain conditions does not prove that the trap is, in ordinary circumstances, an ineffective barrier. It may be argued that the presence of rats in a tight drain, properly trapped at the gullies, is less objectionable than a blocked drain, but this presupposes that the trapped gullies are effective barriers. If the intercepting trap is not an effective barrier, neither is the gully or water-closet trap, and there is therefore every reason to expect that where there are many rats in the sewer they will come into the houses. We know from experience that this is not so. The inefficiency of the intercepting trap as a barrier against rats, as stated in this Report, is therefore a point upon which further evidence is desirable.

Another question, and perhaps the most important of all, is the manner in which to act when it is finally established that intercepting traps are to be done away with. The Model By-Laws having been altered, and the local authority having decided to act upon them, what will then be the position? Houses situated in positions far apart will have to be drained. Are these houses alone to be new points at which the sewers are to be ventilated? It may well be that in a town where there are many houses without intercepting traps the ample ventilation given prevents the likelihood of any nuisance due to the escape of an unduly large volume of sewer gas or smell at one point, but when, say, one house drain on a long length of sewer is to be made to ventilate that sewer, may there not be a considerable nuisance at that point? It is common experience that when a new system of sewers is put into operation smells occur at unexpected points. Smell escapes and is noticeable at some open cover, and the inhabitants are not slow to complain. This is quite as likely to happen at an open cover near a vent shaft as elsewhere. Theoretical principles do not seem to prevent the inlet ventilator from acting as an outlet, or to prevent the bulk of the smell issuing at some point not intended instead of at several ventilators placed for its special accommodation. Is not the same thing very likely to occur if one or two house vent pipes are used for sewer ventilation at houses, and may not the municipal engineer have to deal with complaints, imaginary or otherwise, from local residents who are alarmed? The author, having had considerable trouble from objections raised to purely imaginary smells from sewer vent shafts, cannot avoid the impression that there must be possibilities of trouble for the municipal engineer in the application of the new method.

Again, would it be possible to remove all the traps in the town? It would be easy to make them inoperative as traps by removing the cleaning eyes, but this would not do away with the chief danger—viz., that of stoppage. However, it would be desirable to remove all cleaning eyes as a start, rather than to make a few house drain vent pipes the only new sewer ventilators.

BRIDGE RECONSTRUCTION WORKS IN THE NORWICH DISTRICT.

THE *Eastern Daily Press*, Norwich, in a recent issue gives an account of the strenuous work that has been carried on by the Great Eastern Railway engineers in the area of the memorable flood of August last. On every part of the line for some miles out from Norwich extensive operations have been necessary—pumping, repairing permanent way, strengthening embankments, and repairing or replacing bridges; but nowhere, it is stated, has more energy been demanded than in the reconstruction of the Flordon bridge. The bridge collapsed about four o'clock on August 26. On the following day Mr. H. Wilmer, Engineer for the London district, to whom the duty of reconstructing the bridge was assigned, arrived with a staff from London. They found that the three brick arches of which the bridge consisted had completely disappeared, having fallen into the river below. The two massive brick piers which carried the arches were also levelled to the ground, and there was an open space of about 100 ft. The two lines of rails, however, were suspended, and the distance from these to the water level was 35 ft.; but at that time the water was considerably above its normal level, having, on account of the flood, risen fully 9 ft. The clearing away of the *débris* was the first thing to be taken in hand, and this work was commenced almost

immediately, sixty-two men being brought down from Stratford for the purpose. The removal of the large blocks of brickwork was effected by the use of a 4-ton steam crane, which was kept on the Forncett side. These big blocks, which weighed as much as 7½ to 8 tons, were deposited alongside the embankment. After this sort of *débris* had been cleared, the dropping of the overhanging rails and sleepers into the stream was effected by cutting away the bolts on the embankment, thus allowing the whole to fall into the stream. Here the remnants of the track were cut into sections before being carted away. The *débris* in the river having been taken out—this occupied several days, during which it was constantly raining—the next move was to carry the stream in such a way as to keep it clear of the foundations which were to be put in. This needed some amount of consideration, but immediately a clearance of the fallen bricks and masonry had been made Mr. Wilmer was ready to proceed with the scheme he had prepared for getting in the substantial foundations upon which the new bridge was to rest. At that time the water was still several feet above its normal level, and therefore the construction of a coffer dam across the stream had to be carried out on somewhat elaborate lines. After the dam had been put up a chute 12 ft. wide was laid down, and in this the water was carried over the area in which the foundations were to be laid. The water from the chute fell into a temporary cutting several yards in length, which had been excavated to allow of the concreting of the existing channel on either side. Owing to the many blockades in the lower parts of the stream, the water subsided very slowly, and therefore to have waited until the water reached its normal level would have meant delaying the construction of the dam for weeks, particularly as rain fell for ten days after the floods. The chute was of necessity constructed with great care, because it was absolutely necessary to ensure its being watertight. Some conception of the quantity of water that passed over the chute can be formed when it is said that it poured through continuously at the rate of 15 million gallons every twenty-four hours. Then, owing to the existence of springs, it was necessary to maintain pumping operations to keep the foundation workings clear of water. To do this a 6-in. special pump and pulsometer were employed; in this way 10,000 gallons an hour were dealt with.

The water difficulty having been satisfactorily disposed of, the laying-down of the foundations for the piers of the bridge was proceeded with. These were carried down below the old foundations, and to a depth of 5 ft. below the river bed. Each of the two new piers which now carry the bridge rests upon a block of concrete 30 yds. long, 9 yds. wide, and 2 yds. thick; each block weighs in all over 100 tons. The piers are constructed of London bricks, faced with blue bricks up to 12 in. above the level of the flood. Above that they are in red brick. On the top of the piers blocks of Portland stone, 12 in. thick and 3 ft. 6 in. wide, have been fixed; each of these weighs something like 2 tons. On account of the great difficulty that was, and is still being, experienced in getting ironwork, owing principally to the various strikes that have taken place, it was decided to use timber trusses for the bridge. This decision was come to directly reconstruction was started upon, and the trusses, which were specially designed in the Engineer's department, were prepared at Stratford. They are constructed and laid down in pairs, but each separate truss carries one line of metals over each of the three spans of the viaduct. Each truss weighs 5¼ tons. Each pair of trusses is braced together by intermediate frames, and on the top of every two pairs are 12 ft. by 6 ft. creosoted timbers, extending the whole width of the bridge. A concrete invert was made through the centre piers for the purpose of carrying. The bridge was severely tested with the heaviest type of locomotives on the day previous to opening, and the trials proved most satisfactory.

ROMAN IRON AT CORSTOPITUM.

SITUATED at the west of the village of Corbridge, on the north bank of the Tyne, at a point where a Roman bridge carried Watling-street across the river, Corstopitum was an important military post, established to command the line of communication between York, the headquarters of the Sixth Legion, and the eastern part of the northern province.

Corstopitum was not an ordinary fortress, but rather a town of military character. The two buttressed granaries of exceptional size are distinctly military features, and the massive building to the east of them was also constructed for military purposes. These appear to have been intruded upon the town, thereby converting it into a large depôt, a service which it probably continued to fulfil from the time when Antoninus Pius advanced northward until Septimus Severus conducted expeditions against the Caledonians.

During the recent explorations conducted at Corstopitum by the committee established by the Duke of Northumberland, Lord Ridley, and other gentlemen, one of the largest masses of Roman wrought-iron hitherto found was unearthed.

The bloom measured 39 in. long, and its transverse dimensions were 8 in. by 7 in. at the widest part, and 5 in. by 4½ in. at the smallest part. It weighed 3 cwt. 8 lb., but, being thickly coated with rust and containing much oxidised slag, the net weight of metallic iron was only about 3 cwt.

Preliminary inspection and subsequent examination at Middlesbrough showed that the bloom had been built up and welded in sections.

Professor Henry Louis expresses the opinion that the block was made by welding together comparatively small lumps of iron produced by direct reduction in small charcoal fires, adding that there is no reason why the ores used may not have been the local black-band iron-stones of the carboniferous series.

The furnace in which the bloom was discovered measured about 5 ft. from the top of the wall to the hearth, and about 6 ft. in diameter. The walls were of rough stone set in common clay.

It seems to be clear that the structure was not a smelting furnace, but simply a forge employed in welding up the bloom, and Professor Louis suggests that the block of iron was intended for use as an anvil, and had been undergoing repairs or being lengthened at the time when it was left.

In an historical account of iron manufacture in the North of England, Sir Isaac Lowthian Bell points out that there is little or no doubt that the smelting or reduction of iron ore was carried on to a considerable extent in this part of the country during the Roman occupation. Vast heaps of iron scoriæ may be seen on the moors in the parishes of Lanchester and Chester-le-Street and elsewhere in Northumberland and Durham, and it is remarkable that none of these are very far from one or other of the Roman stations scattered over the two counties.

ENGINEERING NOTES.

Erecting Heavy Girders with a Gin Pole.

IN a new bridge built to carry Two Hundred and Thirty-fifth-street across several railway tracks in the Borough of the Bronx, New York, the roadway is carried by one centre girder weighing 84 tons and two side girders weighing 55 tons, and the footpaths are carried by two outer girders, which weigh 21 tons and 22 tons each.

The two outer girders on one side of the bridge were erected by a steel guy derrick of 50 tons capacity, with a boom 50 ft. long. The 84-ton girder was delivered on one of the centre railway tracks, and a steel gin pole was erected by the derrick to assist the latter in the erection of the girder.

As this method made it necessary to fix the gin pole at a point where it would have interfered with railway traffic, the method was modified so that the girder was erected entirely by the gin pole by which two side girders were also erected.

Having been delivered at a considerable angle with the alignment of the bridge, the girders had to be swung horizontally through an angle of 90 deg., a requirement making the work of hoisting a delicate operation, which, although it had to be performed in short stages, was accomplished in about two minutes.

The gin pole, 65 ft. long, was seated on a special steel shoe measuring 18 in. square at the top and 30 in. square at the bottom. It was built up of four 6-in. equal angle bars at the corners, with latticed bracing, and was fitted with six 1-in. guy ropes and adjustment tackle. The hoisting tackle comprised a ¾-in. steel cable, about 1,400 ft. long, passed through two five-sheave blocks and two single sheaves at the top and bottom, both ends of the line being led to the drums of a 50-h.p. hoisting engine. The hoisting tackle was connected to a shackle lashed to the girder with two 1-in. ropes 125 ft. long, which were protected from the sharp corners of the steel by strips of timber.

The Barrenjack Dam.

ALTHOUGH not so large as the Assouan Dam, the Barrenjack Dam, recently inaugurated in New South Wales, is one of the largest structures of its kind in the world. Picturesquely situated on the Murrumbidgee River, the dam is set between the base of two granite hills that rise to the height of some 2,500 ft., and form the gateway through which the river formerly flowed unrestrained.

At present the crest of the work is about 120 ft. above foundation level, but when the irrigation system for which it has been built has fully developed the structure will be raised to the height of 240 ft. above the foundations. As thus completed the dam will measure 784 ft. long, curved in plan to a radius of 1,200 ft., 240 ft. high, and with a breadth of 170 ft. at the base, and 18 ft. at the crest.

The dam will ultimately hold up the waters of the Murrumbidgee for the length of 45 miles in the long winding valley, creating a lake among the mountains, with an area of some 20 square miles, and providing for the storage of over 33,000,000 cubic ft. of water. It is estimated that, at the average flow of the river, it will take a year to fill the reservoir completely.

The area to be irrigated at once covers 125,000 acres, and will shortly be increased to 350,000 acres, while the entire scheme provides for the irrigation of 1,300,000 acres of land.

Reinforced Concrete Wharf and Jetty at Port Talbot Docks, South Wales.

THE Port Talbot Railway and Docks Company recently invited schemes and tenders for a reinforced concrete wharf and jetty for Port Talbot Docks. After investigation by Mr. W. Cleaver, M.Inst.C.E., Engineer of the Company, of the various competitive schemes, it was decided to accept the tender presented by Messrs. Watt Brothers, of Cardiff, licensees of the Coignet system. The scheme comprises a jetty for coal belt tipping appliance, having a frontage of 65 ft. and a width of 45 ft., the deck being supported by three rows of piles. The wharf has a frontage of 600 ft. length, with a width of 45 ft., and approaches 145 ft. long at each end. The deck in this case is supported by four rows of piles strongly braced together. The permanent depth of water in each case is 32 ft., with decks about 7 ft. above the permanent water level. The work has been calculated to carry three railway lines for heavy locomotives and one crane road. The scheme for the reinforced concrete work has been prepared by Messrs. Edmond Coignet, Ltd., of Westminster.

The Concrete Institute.

A COURSE of six Educational Lectures on "Concrete: Its Properties and Manufacture," will be given by Mr. H. Kempton Dyson, Secretary of the Concrete Institute, at 5.30 p.m., on the following Tuesdays:—November 12, 19, 26; December 3, 10, and 17, 1912. The lectures will be given in the Lecture Hall of the Concrete Institute, at Denison House, 296, Vauxhall Bridge-road, Westminster (close to Victoria Station).

Fire Tests of the British Fire Prevention Committee.

THE British Fire Prevention Committee conducted, on the 16th inst., a further series of fire tests in respect to roofing materials, the coverings under investigation being corrugated sheets of asbestos-cement made in Canada, and produced in such a manner that they can be applied in the same way as corrugated iron sheets whilst having great advantages as to non-conductivity against heat and fire. The roofing material under test was tested at different angles, fire being applied in different forms, such as bonfires, fire brands, etc., and certain of the roofs were also subjected to water from a steam fire-engine when they were in a heated condition. The results of the tests will be issued in about six weeks in an illustrated report, and will be known as Red Book No. 168.

THE BUILDING TRADE.

THE SECRET LAND INQUIRY.

UNDER the title "A Modern Inquisition" on October 4 we commented upon the private inquiry that has been instituted throughout the country relating to questions connected with the land, and suggested that its constitution and authority should be made clear. In answer to a question put to the Chancellor of the Exchequer by Mr. Rawlinson on the 11th inst.—"Whether a Committee has been appointed by him to obtain information for him and the Cabinet regarding the actual conditions of life and labour in Great Britain; whether, if such is the case, he will state the duties of such Committee and the names of its members, and by whom the expenses of such Committee will be defrayed?"—Mr. Lloyd George replied: "The hon. and learned Member rather magnifies the scope of the Committee; its object is to investigate the question of land reform and kindred problems." Then the Chancellor referred the questioner to the answer of the Prime Minister to another question in the House on the same day, but he added that the expenses of the Committee are being defrayed from private sources. The answer of the Prime Minister here referred to was simply a reference to a former answer he gave on July 10, and an assurance that the inquiry was not to extend to Ireland

The answer given on July 10 to which the public is referred on October 11 was as follows:—"The Committee is a purely unofficial and informal body. It will be presided over by my Right Honourable friend Mr. Arthur Acland; I see no reason why the names of the members should be published at present. Should their report be eventually laid before Parliament full information will, of course, be given. It will rest with the Committee to decide what method of investigation should be pursued." The answers to the questions show a certain reluctance on the part of Ministers to associate themselves with this secret inquiry, and necessitate considerable research for their comprehension, but it is now apparent that this form of inquiry has Government support, and, this being the case, it assumes considerable importance. The land is too often used for vote-catching purposes, but it must be remembered that it is the bread, if not the butter, of a large section of the community. Recent open and official taxation has already embarrassed the building trade, and a depressed trade can ill survive disturbing causes. What cause can be more disturbing than a semi-official and secret inquiry into the rating and taxation of land? It must hamper any future enterprise or speculation. Only one deduction can be drawn from its secret character, and that is that, whilst the Government do not wish to take responsibility for a further policy affecting the land, they are anxious to see what can be made of it *sub rosa*. Whatever Government be in power, we should deprecate any such subterranean and secret inquiries, which are far more damaging than an open and avowed policy.

THE INSURANCE ACT.

WHILST assurances are constantly being given by those who are responsible for the Insurance Act that the Act is daily becoming better understood and its working more assured, it is important to draw attention to one point which each month only assumes greater complication. We refer to the difficulty of ascertaining what workmen are within Part II. of the Act and in respect of whom contributions are payable for unemployment insurance. The decisions of the Umpire are only published when they raise a new principle or a question of general interest, yet the applications now number 1,120, and the decisions are very numerous, and we find it quite impossible to derive any general principles from them. We have referred to this question before, and have shown that this uncertainty in the classes who have to be insured arises from the provision in the Act which has made not the business the employer carries on the test, but the nature of the work which any workman is engaged upon (see sect. 107, subsect. 2).

The sixth schedule of the Act, which contains a list of insured trades for the purposes of Part II. of the Act, when it was framed and Parliament was assured it represented a limited experiment, was no doubt accepted in its literal meaning, but taken in conjunction with the above subsection the scope of the Act has been vastly extended, and Solomon himself might have been puzzled to determine whether or not a man came within its provisions.

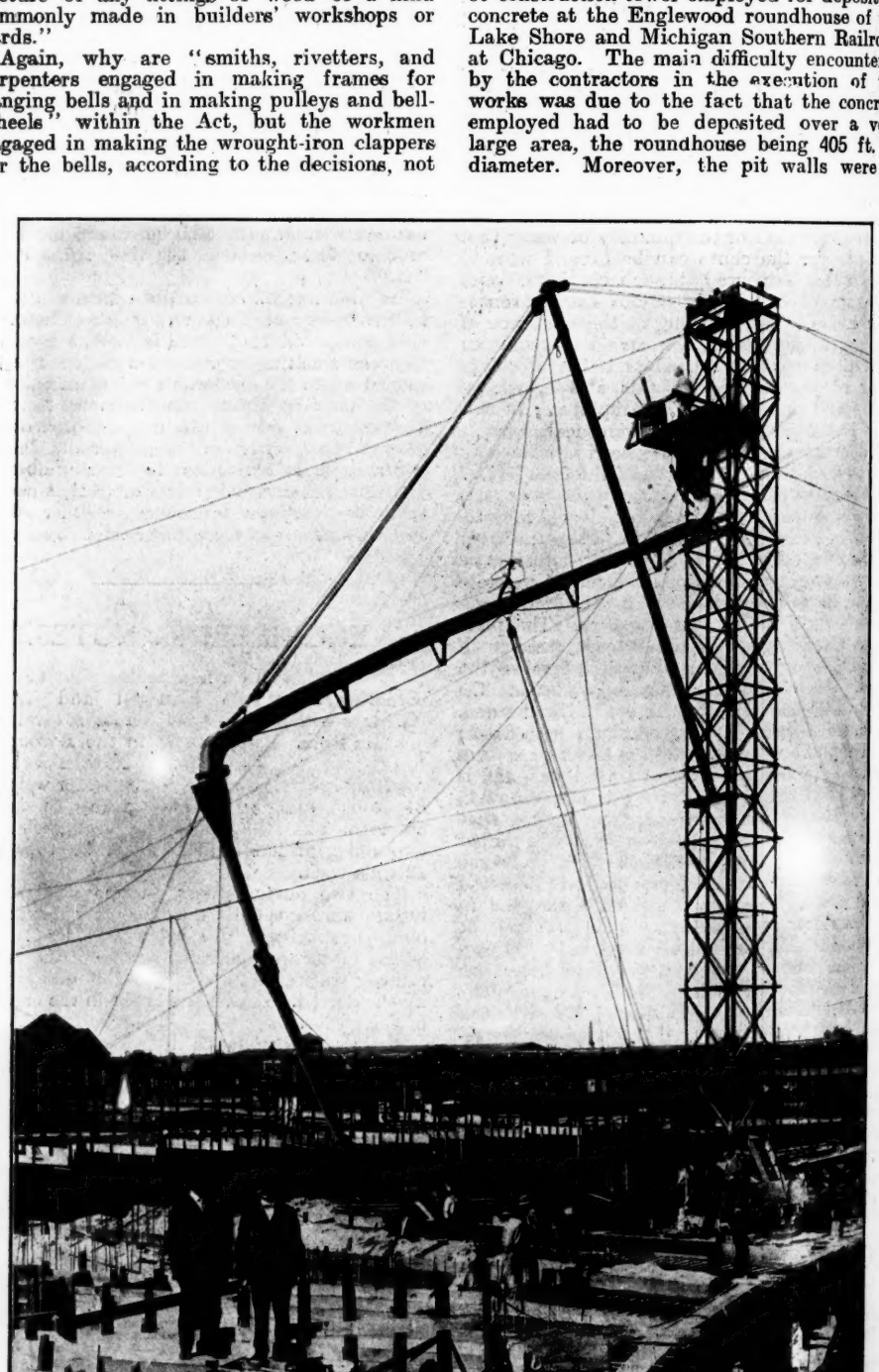
The decisions delivered by the Umpire have to be mastered and collated by employers, who are placed under liability to penalties if they fail to insure a workman who is brought within the ambit of this part of the Act, and we can discern no leading principle.

Why, for instance, should "men described as bell-hangers and engaged wholly or mainly in hanging bells in buildings" be within the Act? The definition of "building" is "the construction, alteration, repair, decoration, or demolition of buildings, including the manufacture of any fittings of wood of a kind commonly made in builders' workshops or yards."

Again, why are "smiths, rivetters, and carpenters engaged in making frames for hanging bells and in making pulleys and bell-wheels" within the Act, but the workmen engaged in making the wrought-iron clappers for the bells, according to the decisions, not included either under the heading "mechanical engineering" or "iron-founding"? A man hanging a bell in a building is insured against unemployment, a man erecting an organ in the same building is not. Numberless examples could be given of the uncertainty prevailing as regards who are and who are not insured persons, and it would appear to be absolutely essential that some steps should immediately be taken to amend the Act so that employers may know—apart from the Umpire—what classes of workmen are insurable under this part of the Act, which, it must be remembered, was introduced as an experiment to be tentatively applied to certain employments especially subject to fluctuations in furnishing employment. If the decisions be studied, it will be seen that this latter consideration does not apply to half the classes of workmen who have been held to be within this part of the Act.

CONSTRUCTION TOWER FOR DEPOSITING CONCRETE.

WE illustrate on this page an unusual type of construction tower employed for depositing concrete at the Englewood roundhouse of the Lake Shore and Michigan Southern Railroad at Chicago. The main difficulty encountered by the contractors in the execution of the works was due to the fact that the concrete employed had to be deposited over a very large area, the roundhouse being 405 ft. in diameter. Moreover, the pit walls were so



Construction Tower for Depositing Concrete.

high that the distribution of concrete by wheelbarrows would have been impracticable, and the cost of a series of timber construction towers was found to be prohibitive, the estimated cost of three such towers being nearly 440*l.*

On the suggestion of the Chain Belt Company, of Milwaukee, a steel tower was adopted, the total cost of which erected in position, was less than 200*l.* Considerable ingenuity had to be exercised in the design of this appliance in order to m ke it portable and to provide for the deposition of concrete at every required point within the radius of the delivery spout. This spout is 60 ft. long, and, being provided with an additional vertical pipe 30 ft. long, enabled the contractors to deposit concrete at a maximum distance of 95 ft. away from the base of the tower.

The tower is 72 ft. high, being made up of 6-ft. sections composed of steel angle and channel bars. The tower rests on timber skids with steel liners, which are placed on railway rails. The concrete spout is made of galvanised-iron. It measures 10 in. square, and is open at the top being stiffened by a light steel truss, as shown in the photograph. The truss and spout are suspended by a 40-ft. boom, which is rigged from the top of the tower and held in place by steel blocks and a cable running to a winch, the winch being secured to one side of the tower so that the boom and spout may be raised and lowered or swung in a semicircle, giving a wide range of work and permitting the concrete to be placed anywhere within a radius of 95 ft. The concrete is prepared in a mixer situated about 600 ft. away from the tower, this arrangement having been due to the situation of the storage bins for raw materials. The concrete mixer discharges into cars, which are transported to the construction tower, where the concrete is transferred to an elevator, hoisted to the top of the tower, and automatically delivered into the receiving hopper. This hopper has a gate valve, which is operated by a man standing on a platform at the top, where the flow of concrete through the spout is regulated.

After the concrete has been placed on one section of the works the tower is drawn back along the rails by means of the hoisting engine situated midway between the tower and the concrete mixing plant, and it is stated that the tower can be moved a distance of 60 ft. in about four hours' time.

Twelve men are employed in operating the plant, including those engaged in loading raw materials into the mixer, the necessary mechanics, and the men engaged in spreading the concrete.

BUILDING PLANS AND BUILDING PROSPECTS.

THE return of building plans submitted for approval in the third quarter of the year as compared with the same quarter last year shows that there is an increase of 58,840*l.*, or 1·7 per cent. This increase takes place solely in connexion with workshops, factories, shops, and other business premises, and is confined to Lancashire, Cheshire, the Midlands, and Wales and Monmouthshire. Outer London shows a decrease of 56,071*l.*, or 10·5 per cent., and in dwelling-houses the decrease in all districts is 97,673*l.*, or 7·2 per cent. In considering the increase shown, as published in the *Board of Trade Labour Gazette*, we find that the number of Councils making returns varies slightly. Thus 102 districts are included this quarter, but last year in the same quarter 101 dist cts made returns. It would therefore be interesting to know how the figures are corrected for comparison. If additional districts are included, that would in itself disturb the averages. Some adjustment, however, appears to be made, for the figures now published in the current issue for the third quarter of 1911 do not agree with the figures published in the *Gazette* in October, 1911, for that quarter.

BIRNAM HOTEL, PERTHSHIRE.

This building, which was destroyed by fire last month, is to be re-erected on as much the same lines as the former building as possible. The plans are being prepared by Messrs. Henry & Maclennan, architects, of Edinburgh, and it is proposed to restore the fine baronial dining-hall with its open timber roof.

THE LONDON ASSOCIATION OF MASTER DECORATORS.

A QUARTERLY general meeting of this Association was held at the Holborn Restaurant on October 14, Mr. J. Anderson, President, in the chair.

Painters' Cards of Employment.

The Chairman said the Committee considered it was a great mistake that painters should apply for employment without any means of proving their qualifications, and they had considered the question and more or less approved of cards of employment which painters could carry, showing at least that they had worked for a firm for a certain time. There was nothing on the card to show the character of the man. It was, however, considered that the Insurance Act would more or less take the place of the cards, but then it was discovered that an insurance card was not quite suitable, as nothing was allowed to be put upon it except the date. The Committee had reconsidered the question, and, having regard to the fact that owing to the multiplicity of insurance cards, masters had quite enough cards to deal with for the present, the Committee recommended that the matter be postponed for the time being. This was agreed to.

Foreman Painters.

The meeting then proceeded to the consideration of suggestions as to conditions of foremen painters' employment, rate of pay, etc.

The Chairman explained that it was felt by some master decorators that there were various methods amongst firms of dealing with foremen. The matter was brought before the Committee by Mr. Campbell and discussed, and was referred to Mr. Campbell and Mr. de Jong to go into the matter and bring up a definite Report embodying suggestions. Unfortunately, the Report had not yet matured sufficiently to bring it forward that evening, and the Committee therefore suggested that the matter be referred to the next General Committee meeting. Whatever scheme was finally adopted, it was not, of course, intended that the members should be obliged to adopt it if it did not meet with their approval.

The matter was referred to the General Committee to consider the subject and report to the next general meeting.

Additional Vice-President.

It was agreed that the Association should have two Vice-Presidents and Mr. Wilkinson was unanimously elected.

Future Meetings.

The President, in giving as a delegate his Report on the Chester Convention of Association of Master House Painters, said the work sent in by the students and apprentices for competition was a distinct improvement on previous years.

Mr. Wilkinson, who also attended as a delegate, confirmed the President as to the value of the papers read and the discussions which followed.

The President explained that the meeting next year was to be held at Leamington, but there would be no exhibition there, possibly owing to lack of accommodation. In the following year the Convention was to be held in Manchester, and he had every reason to believe that three years hence the Convention would like to come to London if it could be by any means arranged. He asked the members of the Association to consider what could be done to hold the Convention in London, as he believed it would be very successful, but it meant a deal of hard work.

BUILDING OPERATIONS AT CO-PARTNERSHIP ESTATES.

ON Saturday, October 19, a conference of managers, foremen, and others concerned in the building operations at various co-partnership estates at Liverpool, Stoke-on-Trent, Hampstead, and elsewhere, was held in the Institute of the Brentham Garden Suburb of the Ealing Tenants, Ltd. Mr. Henry Vivian presided, and Mr. G. L. Sutcliffe, F.R.I.B.A., opened a discussion on prime costing. The necessity of care in allocating to each part of a particular job the exact materials used was urged as one of the means to avoid the great variations that occur in the ordinary tendering by building firms. During the afternoon many of the visitors inspected the flats that are being erected for elderly folks on the Ealing Suburb, and a vote of thanks to the directors of the Ealing Tenants, Ltd., was carried on the motion of Mr. F. Litchfield, of the Garden Suburb Builders, Ltd., seconded by Mr. W. Grant, of Woodworkers, Ltd., the newly-established joinery manufacturers in the Garden City at Letchworth.

LONDON MASTER BUILDERS' ASSOCIATION.

THE Council of the London Master Builders' Association met on October 17, the chair being occupied by Mr. James S. Holliday, President.

The Special Committee appointed to confer with the representatives of the various trade organisations submitted its Reports of the several conferences which had been held, which were unanimously adopted.

Reports of the Conciliation Board meetings were received.

Correspondence relating to trade matters was read.

Messrs. T. W. Helsdon & Sons, Lissongrove, N.W., were elected ordinary members, and the nomination of Mr. H. C. Horswill, Forest Gate, E., as ordinary member was accepted.

GOVERNMENT CONTRACTS.

THE following tenders have been accepted during the past month by the Government Departments named:—*Admiralty, Works Department:* Works services: Addition to Officer Patients' Block, Haslar Hospital—Mr. J. Hunt, Cleveland-road, Gosport; double aeroplane shed, Eastchurch—Messrs. Humphreys, Ltd., Knightsbridge, S.W.; foundations and works in connexion with storage accommodation for oil fuel on the Humber—Messrs. Price, Wills, & Reeves, 28, Victoria-street, S.W.; new gates for No. 2 Dock, H.M. Dockyard, Portsmouth—Receiver and Manager for Thames Ironworks, Shipbuilding, and Engineering Company, Ltd., Canning Town, E.; shop for repairing turbines and boiler shop adjoining H.M. Dockyard, Devonport—Messrs. J. Lysaght, Ltd., St. Vincent's Ironworks, Bristol. *War Office:* Portland cement (running contract)—Associated Portland Cement Manufacturers (1900), Ltd., Northfleet, Kent; Works services: alterations and additions to married quarters, Stanhope Lines, Aldershot—Messrs. G. Kemp & Co., Elms-road, Aldershot; alterations to Isolation Hospital, South Aldershot—Mr. E. C. Hughes, Albion Works, Wokingham; construction of road from Broxhead to Oxney Camping Ground, Bordon—Messrs. Turner & Kersley, Blackwater, Hants; conversion of chapel school to regimental institute, Sheffield—Mr. A. Robinson, Woodbine Works, Idle, Bradford; conversion of recreation-room, etc., to regimental institute, Hilsea—Messrs. Wigginton & Sons, Portsmouth; erection of annexes to married soldiers' quarters, Devizes—Messrs. W. E. Chivers & Sons, 29, Sheep-street, Devizes; erection of barrack expense store, Weymouth—Messrs. Jesty & Baker, Castletown, Portland; erection of electric power station, Tidworth—Messrs. W. P. Goose & Sons, 124, Milton-road, Gravesend; erection of married soldiers' quarters, Milldam Barracks, Portsmouth—Mr. F. J. Privett, Cottage-grove, Southsea; erection of stables and coachmen's quarters, Tidworth—Messrs. Wort & Way, Castle-street, Salisbury; erection of officers' quarters, Shorncliffe—Mr. T. T. Denne, Walmer, Kent; improvements to soldiers' quarters, East Rear Range, R.A. Barracks, Woolwich—Mr. W. J. Renshaw, Atlas Works, Putney; installation of heating, etc., apparatus, new barrack blocks, Fort Burgoyne, Dover—Messrs. E. Deane & Beal, Ltd., 3, Monument-street, E.C.; installation of heating apparatus, regimental institute, Jersey—Messrs. H. J. Cash & Co., Ltd., Caxton House, S.W.; maintenance and repair of War Department buildings at North Dublin—Messrs. J. & R. Thompson, Ltd., Philipsburgh-avenue, Fairview, Dublin; South Dublin—Messrs. McRoberts & Armstrong, Lower Windsor, Belfast; Galway—Mr. R. MacDonald, 17, Dominick-street, Galway; Salisbury Plain (West)—Messrs. E. & A. Sprigings, Stamshaw, Portsmouth; overhead conductors and supports for electric light installation, Tidworth and Bulford—Messrs. G. E. Taylor & Co., 8, Bush-lane, Cannon-street, E.C.; periodical works services at Brighton and Newhaven—Messrs. Skevington Brothers, Bateman-street, Derby; Bristol,

Curragh Camp, Plymouth, and Devonport—Messrs. A. Bagnall & Sons, Ltd., Shipley, Yorks; Shorncliffe and Weedon—Mr. T. Carr, 55, New Crown-street, Halifax; provision of increased accommodation, Bury—Mr. R. Holt, 50, Badger-street, Bury; rearrangement of drainage, Royal Army Clothing Department, Pimlico, S.W.—Messrs. W. F. Blay, Ltd., Spital-street, Dartford; reconstruction and repair of roads, Pirbright—Messrs. Turner & Kersley, Blackwater, Hants; remetalling and repair of parades, Woolwich—Messrs. Bristowe & Co., 11, Tothill-street, S.W.; removal of aeroplane sheds from Larkhill and re-erection at South Farnborough—Mr. W. Harbrow, South Bermondsey Station, S.E. *India Office, Store Department:* Cement—Associated Portland Cement Manufacturers, Lloyds-avenue, E.C. *Crown Agents for the Colonies:* Bridgework—Messrs. Head, Wrightson, & Co., Ltd., 5, Victoria-street, S.W.; road bridge—Messrs. J. Westwood & Co., Ltd., Napier-yard, Millwall, E.; steel bridgework—Messrs. J. Butler & Co., Victoria Ironworks, Halifax; cement—Messrs. Wouldham Cement Company, Ltd., 35, Great St. Helens, E.C. *Office of Works:* Building work; adaption of Croydon Labour Exchange—Messrs. Crabb & Son, 75, Streatham-hill, S.W.; erection of the Hyde Sorting Office, Hendon—Mr. W. Tout, Brent-street, Hendon, N.W.; superstruction of extension of new public offices, Westminster, S.W.—Messrs. Holloway Brothers (London), Ltd., Belvedere-road, Lambeth, S.E.; alterations to Nottingham County Court—Mr. G. A. Pillatt, 92, Sherwood-street, Nottingham; foundations of new offices for Public Trustee—Messrs. T. H. Kingerlee & Sons, Oxford; adaption of Stratford Labour Exchange—Mr. A. G. Barton, Daventry Works, Walthamstow, N.E.; erection of head post-office, Weybridge—Mr. F. J. Privett, Haslemere, Surrey; erection of sub-post-office, Whittington Barracks, Lichfield—Messrs. T. Lowe & Sons, Burton-on-Trent, drainage work: redrainage of Buckingham Palace—Messrs. Matthew, Hall, & Co., 88, Wigmore-street, W.; remodelling lavatories, Edinburgh General Registry House—Messrs. G. & R. Cousin, 14, Waverley-market, Edinburgh; redrainage of St. James' Palace—Messrs. Davis, Bennett, & Co., 94A, Horseferry-road, Westminster, S.W.; reglazing roofs of Victoria and Albert Museum—Messrs. Higgs & Hill, Ltd., Crown Works, South Lambeth-road, S.E.; heating apparatus, Sofia Legation—Messrs. Davis, Bennett, & Co., 94A, Horseferry-road, Westminster, S.W.; steel sashes, new Stationery Office—Messrs. Crittall Manufacturing Company, Ltd., Manor Works, Braintree; ventilation work at Custom House, E.C.—Messrs. J. Statt & Co., 158, Queen Victoria-street, E.C.; woodpaving, Admiralty Arch—the Improved Wood Pavement Company, 46, Queen Victoria-street, E.C. *General Post Office:* Laying lines of pipes in Great Dover-street, S.E., and Lee High-road, Burnt Ash-hill, S.E.—Messrs. William Griffiths & Co., Ltd., Hamilton House, Bishopsgate, E.C.; laying lines of pipes at Springburn, Glasgow—Messrs. Airds, Ltd., 22, Queen Anne's-gate, S.W.; slates—Messrs. Bingley, Son, & Follit, Ltd., Westminster, S.W. *Commissioners of Woods:* Alterations at Beaufort Arms, Tintern—Mr. G. Jones, Monmouth.

ORGANISATION OF BUILDERS' WORKMEN.

A CONFERENCE was held on the 21st inst. at Essex Hall to consider the results of the ballot recently taken by twenty workers' unions in the building trade on the question of amalgamation.

At the end of the Conference, which was private, Mr. Bowerman, M.P., the Secretary, stated, says the *Times*, that the figures showed a large majority in favour of the principle of amalgamation. A further meeting of the consenting unions is to be held to draw up a full scheme of amalgamation. The unions which have decided to join the movement are the Amalgamated Carpenters and Joiners, Manchester Bricklayers, Plumbers, Stonemasons, National Union of Builders' Labourers, United Builders' Labourers, National Union of Bricklayers, Stonemasons, and Paviors, and the London and Provincial Society of Painters and Decorators.

BENTLEY SEWAGE.

The Bentley Urban District Council have accepted a tender, by Messrs. Arnold & Son, of Doncaster, for the construction of new sewerage and sewage disposal works. The price is 12,458*l*., and includes the making of new works on the Tollbar Estate, enlargement of the present works in Arksey-lane, and the installation of new pumps at Bentley-road.

GENERAL BUILDING NEWS.

COUNCIL SCHOOL, HELWITH BRIDGE.

This new school at Helwith Bridge, near Settle, has been erected at a cost of 682*l*. from the designs of Mr. John Stuart, Architect to the West Riding County Council. The school provides accommodation for about sixty pupils and was opened on the 12th inst.

SECONDARY SCHOOL, WHITLEY BAY.

The new County Council Secondary School, Whitley Bay, is being erected from plans prepared by Mr. G. T. Forrest, and it is hoped it will be ready for occupation in about sixteen months' time.

HOSPITAL, BENFIELDSIDE.

The foundation-stone of the Murray Commemoration Hospital was laid at Benfieldside on the 16th inst. The site of the hospital is in Ritson's-road, Benfieldside. The building will consist of four separate blocks, connected by an enclosed corridor 6 ft. wide. The ward pavilion or nursing block is two stories high, the ground floor being for males, and the upper floor set apart for females and children. The place is designed so as to be a convalescent home as well as a hospital. The premises have been arranged so as to allow of future extensions, and a new north ward may be added to the pavilion without disturbing the ordinary routine of the institution. The buildings have been designed by Mr. J. J. Eltringham, of Blackhill, and the principal contractor is Mr. J. L. Miller, of North Shields. The heating arrangements have been entrusted to Mr. William Richardson, of Darlington. The total cost of the hospital is 13,500*l*. The buildings will be of brick, with stone facings.

BUSINESS PREMISES, SOUTH SHIELDS.

Messrs. Fowler & Brock, of King-street, South Shields, have recently carried out extensions to their premises at a cost of about 3,500*l*. The scheme necessitated the remodelling and improvement of the internal arrangements of the existing premises, and the rebuilding of two blocks of property. The new premises have been carried out to harmonise with the adjoining building, being faced with Heworth Burn Stone, and Messrs. Sage & Co., London, have designed and carried out the shop fronts, which are of polished mahogany, with base of polished granite, and mountings and fittings of bronze. A feature of the work is the large island window and the two entrances at each side, the effect being to provide an arcade, with marble mosaic pavement. Internally, access to the upper floors is obtained by three staircases. The heating is by low-pressure hot-water system, with numerous radiators, this work having been done by Mr. George Gray, of South Shields, and the building is lighted by electricity. The general contractors for the work was Mr. James Carruthers, and the architect was Mr. Henry Grieves, A.R.I.B.A., both of South Shields.

TRADE NEWS.

The "Boyle" system of ventilation (natural), embracing Boyle's latest patent "air-pump" ventilators and air-inlets, has been applied to Cairn Ryan School, Wigtownshire.

The Festiniog Urban District Council Assembly Rooms are being ventilated by means of Shorland's patent exhaust roof ventilators and patent hygienic inlet ventilating panels, supplied by Messrs. E. H. Shorland & Brother, Ltd., of Failsworth, Manchester.

LONDON COUNTY COUNCIL SCHOLARSHIPS.

Application forms for Trade Scholarships must be submitted to the Education Officer, Education Offices, Victoria-embankment, W.C., not later than Saturday, October 26. Successful candidates will be required to take up their awards immediately after Easter, 1913. By means of these scholarships boys may secure free education (with maintenance grant) at trade schools, at which they will receive such instruction as will prepare them on leaving school to take up either apprenticeships or employment in skilled trades. No candidate is eligible whose parents (or guardians) do not reside within the area of the administrative County of London. The scholarships are only intended for boys who intend to enter at the end of the course the trades in which they receive training. The London County Council is being recommended to award ten scholarships in painting and decorating at the London County Council School of Building, fifteen scholarships in building at the Northern Polytechnic, and ten scholarships in engineering at the London County Council Hackney Institute, and to transfer the ten existing scholarships in building at the London County Council Hackney Institute to the Northern Polytechnic.

APPLICATIONS UNDER LONDON BUILDING ACTS, 1894 to 1909.

AT Tuesday's meeting of the London County Council the following applications under the London Building Acts were dealt with. (The names of the applicants are given in parentheses):—

Lines of Frontage and Projections.

Bethnal Green, North-east.—Erection of an iron and glass shelter in front of a building on the southern side of Hackney-road, abutting upon the eastern side of St. Peter's-street (Messrs. F. Matcham & Co. for Messrs. Hyman).—Refused.

Lewisham.—Erection of porches and wooden bay-windows to four houses on the southern side of Rushford-road, Lewisham (Mr. A. J. Roddis for Mr. E. W. Webb).—Consent.

Poplar.†—Building at St. David's Wharf, on the southern side of West Ferry-road, Millwall (Mr. T. A. Watson for the Manganese Bronze and Brass Company).—Refused.

St. Pancras, North.—Erection of buildings upon a site abutting upon Kentish Town-road, Prince of Wales-road, and Grafton-mews, St. Pancras (Mr. S. G. Castleman).—Consent.

St. Pancras, South.—Erection of a porch in front of a building on the northern side of Bidborough-street, St. Pancras (Mr. H. B. Hale).—Consent.

Strand.—Erection of a balustrade to the area in front of the United Service Club, Pall Mall (Messrs. Thompson & Walford for the United Service Club).—Consent.

Wandsworth.—Retention of a coal shed at No. 122, Tooting Bec-road, Upper Tooting, abutting upon the north-western side of Montana-road (Messrs. Swain & Selley).—Consent.

Width of Way and Line of Frontage.

Islington, North.—Re-erection of No. 289, Hornsey-road, Islington (Mr. A. S. R. Ley).—Consent.

Width of Way and Construction.

Limehouse.—Erection of sheds of a temporary character at No. 2, Church-row, Limehouse, next to Maize-row (Mr. A. Hall).—Refused.

Lines of Frontage and Construction.

Battersea.†—Erection of a wood and iron motor shed at the side of No. 38, Spencer-road, next to North-side, Wandsworth-common (Mr. T. Wilson).—Refused.

Brixton.—Temporary octagonal building at No. 437, Brixton-road, Brixton (Mr. R. Lang Sims).—Consent.

Dulwich.—Temporary greenhouse and potting shed at the rear of No. 29, Alleyn-park, Dulwich, abutting upon Alleyn-road (Mr. A. C. Hurtzig).—Consent.

Islington, East.—Erection of an addition in front of Globe Works, Queensland-road, Holloway (Messrs. W. Barns & Son).—Refused.

Norwood.—Temporary iron building on the western side of Tulse-hill, Brixton (Mr. F. Hill).—Refused.

Space at Rear.

Chelsea.—Erection of additions at the rear of No. 52, Draycott-place, Chelsea (Messrs. Ruscoe Brothers & Co. for Captain F. S. Grogan).—Consent.

Chelsea.—Erection of Sloane Gate-mansions, on the eastern side of D'Oyley-street, Chelsea (Messrs. W. & E. Hunt).—Consent.

Kensington, South.—Addition at the rear of No. 125, Earl's Court-road, Kensington (Mr. W. Knight).—Consent.

St. George, Hanover-square.—Erection of an additional story at No. 67, Curzon-street, Mayfair (Messrs. Marion & Co., Ltd.).—Consent.

Westminster.—Erection of a building at the north-eastern corner of Smith-square, Westminster (Messrs. W. Cubitt & Co. and Messrs. H. Field & Simmons).—Consent.

Height of Buildings.

Westminster.—Erection of the New Middlesex Guildhall exceeding in height the width of the street leading from the Sanctuary to Little George-street, Westminster (Messrs. Gibson, Skipwith, & Gordon for the Middlesex County Council).—Consent.

Construction.

City of London.—Water-tanks on the roof of a building upon the site of Nos. 22 to 25, Farringdon-street, City (Mr. H. O. Ellis).—Consent.

Alteration of Buildings.

Kensington, North.—Additions at the rear of No. 53, St. Ervan's-road, Kensington (Mr. E. Hunt).—Consent.

Paddington, South.—Alterations at No. 33, Westbourne-grove, Paddington (Messrs. W. Whiteley, Ltd.).—Consent.

St. George, Hanover-square.—Erection of a building on the northern side of Hanover-square, Westminster, abutting upon the eastern side of Harewood-place (Messrs. Collcutt & Hamp).—Consent.

Cubical Extent.

Kensington, South.—Erection of a goods lift (Mr. C. W. Stephens for Harrod's Stores, Ltd.).—Consent.

Uniting of Buildings.

Brixton.—Formation of openings at the ground and first-floor levels between Nos. 50 and 52, Robsart-street, Brixton (Messrs. H. Bragg & Sons, Ltd., for the trustees of the late Mr. W. Slade).—Consent.

City of London.—Formation of a further opening in the party wall at the ground-floor level between No. 41, Lothbury and 38, Throgmorton-street, City (Mr. A. Blomfield).—Consent.

Fulham.—Doors of special construction in lieu of iron doors to an opening at Thompson's Model Laundry, Margravine-road, Hammersmith (Fireproof Doors, Ltd.).—Consent.

Holborn.—Openings in the party wall between Nos. 223 and 224, and Nos. 223 and 225, Tottenham Court-road (Mr. A. H. Heron for the National Cash Register Company, Ltd.).—Consent.

Marylebone, West.—Uniting of Nos. 16 and 18, Granville-place, St. Marylebone (Messrs. Hammersley, Kennedy, & Co., Ltd.).—Consent.

St. George.—Omission of double iron doors to openings between Nos. 14 and 16, High-street, Wapping (Mr. M. Marsland for the London and Edinburgh Shipping Company).—Refused.

Strand.—Uniting of Nos. 15, 16, and 17, Castle-street, Long-acre (Mr. W. Petch).—Consent.

Strand.—Uniting of No. 50, Shaftesbury-avenue with No. 20, Rupert-street (Mr. T. B. Whinney for the London City and Midland Bank).—Consent.

The recommendations marked † are contrary to the views of the Metropolitan Borough Councils concerned.

BUILDING BY-LAWS.

In Wednesday's Parliamentary Papers Sir A. Griffith Boscawen asked the President of the Local Government Board whether he could state what response he has had, if any, to the circular issued last month to District Councils regarding building by-laws; whether any District Councils were taking steps to amend unsuitable by-laws; and whether he possessed any powers to compel local authorities to amend their by-laws in cases where they are so framed as to make the building of cottages unnecessarily difficult and expensive.

Mr. Burns replied that he had not yet received, as the result of his recent circular, any definite proposals for amendment of by-laws, but a large number of local authorities had made application for copies of the Board's model series of by-laws, and these authorities were no doubt considering the question of adopting by-laws suitable to their districts. As regards the last part of the question, he referred the Hon. Member to sect. 44 of the Housing and Town Planning Act, 1909.

PROJECTED NEW BUILDINGS IN THE PROVINCES.*

Alder Hay.—Hospital (100,000*l.*); Messrs. Horace Kelley & Brothers, builders, 130, Rice-lane, Walton, Liverpool.

Ashington.—Forty-nine houses for the Ashington Coal Company, Ltd., Milburn House, Newcastle-on-Tyne.

Banbury.—Garages, Marlborough-place, for Messrs. Ewins & Son, carriage builders, Calthorpe-street, Banbury.

Bangor.—Proposed convenience and baths (3,000*l.*); Surveyor, Council Offices, Bangor.

Barnsley.—Workshops at Nelson Foundry, Nelson-street; Messrs. G. Moxon & Son, Central-chambers, 26, Church-street, Barnsley.

Barrow-in-Furness.—Extension to tramway depôt for the British Electric Traction Company, Ltd.

Baxenden.—Offices and additions at Turkey Red Dyeworks for Messrs. Kearns, Allen, & Co., yarn merchants.

Birmingham.—Picture theatre, King's Heath (2,000*l.*); Mr. F. Reynolds, architect, Waterloo-street, Birmingham; Mr. F. Smith, builder, Mosley-road, Birmingham. Fire-station, Prestbury-road, Aston; Mr. Henry E. Stilgoe, Engineer, Town Hall, Birmingham. Schools, Aston; Mr. T. H. Buckland, architect, St. Margaret-street, Birmingham. Proposed additions to Midland Women's Hospital (6,000*l.*); Mr. H. E. Aston, Hon. Secretary, 45, Newhall-street, Birmingham.

Bedworth.—Baptist church, Coventry-road (2,500*l.*); Mr. T. R. J. Meakin, architect, Warwick-street, Coventry; Mr. L. Bunney, builder, Bedworth.

Bishop's Itchington.—Houses for Messrs. Greaves, Bull, & Lakin, cement manufacturers, Harbury, Leamington Spa.

Bishop's Stortford.—Swimming-baths, South Mill (about 1,000*l.*); Mr. R. S. Scott, Surveyor, Council Offices, Bishop's Stortford.

Blackpool.—School; Rev. J. Bradbury, Pastor, Chapel-street, Primitive Methodist Church.

Bradford.—Wesleyan Sunday-school, Undercliffe (2,400*l.*), for the Trustees.

Brighton.—Drill hall, etc.; Captain Hawker, North-street, Quadrant, Brighton.

Bury.—Nurses' home (743*l.*); Mr. J. Isherwood, Clerk, Guardians' Offices, Bury.

Chryston.—Four houses at epileptic colony, East Muckcroft, for the Glasgow Parish Council.

Crick.—School; Mr. J. L. Holland, County Education Offices, Northampton.

Daventry.—School (2,946*l.*); Messrs. Adams & Son, builders, Oxford-street, Daventry.

Doncaster.—Offices; Mr. R. Waterhouse, architect, Staple Inn-buildings, Holborn, W.C.

Dublin.—Housing scheme; Mr. C. J. McCarthy, Architect, City Hall, Dublin.

Dundee.—Extensions to Stobswell Works, Dura-street, for the Buist Spinning Company, Ltd.; alterations to premises, Perth-road, for Messrs. A. & R. Lickley.

Edinburgh.—Conversion of 44-48, Nicholson-street, into picture palace (750 places) for Mr. Ralph Pringle.

Erith.—Picture palace; Mr. G. W. Booth, architect, 42, Regent-street, Haslingden.

Esh Winning.—Branch premises for the Annfield Plain Co-operative Society.

Gerrard's Cross. — All Saints' Church (3,500*l.*); Mr. Temple Moore, architect, Well Walk, Hampstead, N.W.

Harton. — Forty-two houses; Mr. J. H. Morton, architect, 50, King-street, South Shields.

Harwich.—Fire-station; Mr. H. Ditcham, Engineer, Town Hall, Harwich.

Hexham. — Additions to slaughterhouse (830*l.*); Mr. G. I. Murray, Surveyor, Council Offices, Hexham.

Horbury.—Parochial hall, Vicar-lane, for the Vicar, St. Peter's Church.

Ipswich.—Enlargement of infirmary (5,500*l.*); Mr. J. A. Scheuermann, architect, 9, Northgate, Ipswich.

Kenilworth.—Cemetery buildings (1,280*l.*); Messrs. E. Smith & Sons, builders, Rosemary-hill, Kenilworth.

Kilcolman. — Additions to St. Colman's Church; Mr. B. E. F. Sheehy, architect, George-street, Limerick.

Kirkcaldy.—Extensions to factory for Messrs. M. Nairn & Co., Ltd., linoleum manufacturers, Nether-street, Kirkcaldy.

Lincoln.—Alterations to old barracks for the Lincs. Territorial Force Association. Proposed improvements at Peter-in-Eastgate Church (1,800*l.*); Rev. W. A. Purey-Cust, St. Margaret's Vicarage, Lincoln.

Llandrindod Wells.—School (5,040*l.*); Messrs. D. & W. Meredith, builders, Montpellier Park, Llandrindod Wells.

Llanelly. — One hundred and twenty-four houses; Mr. George Watkeys, Surveyor, Council Offices, Llanelly.

Llanwrin.—School; Mr. G. A. Hutchings, County Architect, Welshpool.

Newtown.—School; Mr. H. C. Marks, Surveyor, Town Hall, Carlisle.

Ormskirk.—Battery and sub-station (about 3,000*l.*); Messrs. J. Robinson & Son, builders, Ormskirk.

Orrell.—Holgate Congregational Church; Messrs. J. B. & W. Thornley, College-chambers, Library-street, Wigan.

Oswaldtwistle.—Proposed library; Mr. R. N. Hunter, Surveyor, Council Offices, Oswaldtwistle.

Paisley.—Additions and alterations to works, Gordon-street, for Messrs. James Paton, Ltd., wholesale stationers, 110, Causeyside-street, Paisley.

Penrith.—School; Mr. C. C. Hodgson, County Education Offices, Carlisle.

Plymouth.—School (14,000*l.*); Mr. J. H. Ellis, Clerk, Town Hall, Plymouth; architect to be appointed by competition.

Polesworth.—School; Mr. A. S. Dixon, architect, Broad-street, Birmingham.

Raunds.—School; Messrs. Blackwell & Riddey, architects, High-street, Kettering.

Redruth.—Additions to workhouse (672*l.*); Mr. T. C. Peter, Clerk, Guardians' Offices, Redruth.

Scarborough.—Bungalows, shelters, and improvements in North Bay and south side of promenade (5,580*l.*); Mr. Henry W. Smith, Engineer, Town Hall, Scarborough.

Selby.—Roman Catholic School; Very Rev. Canon Worthy, St. Mary's, Selby.

Sheffield.—Improvements to the Jessop Hospital for the Board of Management. Plans have been passed as follows:—Six houses, Chesterfield-road, for Miss A. Hunt; additions to premises, Montfort and Lopham streets, for Messrs. W. Stones, Ltd.; additions to premises, Archer-road, for Messrs. W. S. Laycock, Ltd.; alterations to premises, Cambridge-street and Backfields, for the proprietors of the Sheffield Hippodrome; additions to premises, Penistone-road, for Messrs. D. Doncaster & Sons, Ltd.; additions to premises, Watson's-walk, for Messrs. T. B. & W. Cockayne, Ltd.; seventeen houses, Greenhill and Harbord roads, for Mr. J. Laver; additions and alterations to Matilda Tavern, Matilda-street, for Messrs. S. H. Ward & Co., Ltd.

Skibbereen.—Seventeen houses (154*l.* each); Mr. William Casey, builder, North-street, Skibbereen.

South Elmsall.—Forty-four houses off Broad-lane for the Carlton Main Colliery Company, Barnsley.

Sparkbrook.—Tramway depôt (21,747*l.*); Mr. T. Johnson, builder, Willis-street, Birmingham.

Stafford.—Engineering Institute; Mr. K. L. Hutchings, Education Offices, Stafford.

Stratford-on-Avon. — Meter house, etc.; Messrs. G. Whateley & Sons, 27, Rother-street, Stratford.

Sunderland.—St. John's Church Institute; Messrs. Caws, Steel, & Caws, architects, 22, Fawcett-street, Sunderland.

Tanfield.—Offices, Tanfield Lea, for Messrs. J. Joicey & Co., Ltd., colliery owners, Cathedral-buildings, Dean-street, Newcastle.

Uppingham.—Extensions to bank for Messrs. Barclay & Co., Ltd., bankers, 54, Lombard-street, E.C.

Walsall.—The following plans have been passed:—Electric theatre, Stafford-street and Green-lane, for Mr. T. Jackson; additions to foundry, Lower Rushall-street, for Messrs. T. Gameson & Sons, Ltd.; warehouse, Green-lane, Leamore, for the Talbot-Stead Tube Company, Ltd.; additions to offices, Sawmills, Bloxwich, for Messrs. E. W. Turner & Co.; rebuilding garage, Green-lane, for Messrs. J. Birch & Sons; alterations and additions to Temperance Hall, Freer-street, for the Trustees.

Warrington.—Proposed alterations to police buildings; Mr. T. Longdin, Surveyor, Town Hall, Warrington.

West Sussex.—Three schools; Mr. H. R. Roberts, Architect, Education Offices, Horsham.

Worcester.—Proposed swimming-baths; Mr. A. G. Parker, Architect, Town Hall, Worcester.

FOREIGN AND COLONIAL.

Industrial Awakening of Turkey.

The following information is from the Report by Mr. B. A. Altintop, of the British Consulate-General at Smyrna, on the trade of that district in 1911-12, which will shortly be issued:—Quite a number of mills and factories have been erected in the Smyrna district during the last few years. The most important of these are for spinning and weaving (cotton and wool), and for extracting oil from cotton seed and tannin from valonia. The industrial awakening is further evidenced by the establishment of a large number of machine workshops, by the steadily increased imports of machinery, and the gradual substitution of mechanical appliances for hand labour. A new brewery is in course of construction in Smyrna, and the staple industry of the district (carpet manufacturing) is visibly extending. Dissatisfaction with the present, and uncertainty as to the future, extreme caution and reserve in all dealings, tightness of money, restricted credit, and scarcity of labour, may be said to be the characteristic features of the present situation. The great hopes raised as to the country's economic and other developments a few years ago have not been realised. No steps have been taken to develop the agricultural and mineral resources of the country, and no appreciable improvement has been made in municipal administration or public security. Signs of improving conditions, however, are visible. Great activity is noticeable in the building trade of Smyrna. The town has been undergoing a veritable transformation during the last three or four years. Substantial bank buildings, business premises and warehouses, theatres, factories, educational establishments, and private houses, both in the town and suburbs, have been built, and others are now under construction. The increase in the importation of building material, such as cement, timber, tiles, iron, sanitary appliances, etc., is an additional evidence of activity in this respect.

* See also our list of Competitions, Contracts, etc., on another page.

VACUUM CLEANER INSTALLATIONS.

THE hygienic system of removing dust from carpets, furniture, and the interior of buildings generally practically dates from the year 1900, when the British Vacuum Cleaner Company introduced apparatus constructed under the Booth patents. The success achieved by these appliances has naturally brought about the evolution of various rival devices devoted to the same end.

In discussing the subject our aim is merely to summarise for the convenience of readers the general types of vacuum cleaner apparatus available in the present day without making any comparisons of invidious nature.

Vacuum cleaners of the mechanical type, from the handy little machine which can be carried about a private house to the elaborate plant for installation in large public and other buildings, may be divided into two classes :—(1) Machines where suction is established by means of bellows, and (2) machines where rotary or piston pumps are employed for creating the requisite vacuum.

A third class of vacuum cleaner is represented by apparatus of the ejector type, where the working vacuum is produced by a current of water, steam, or compressed air, the fundamental principle involved being analogous to that underlying the design of the injector largely employed for boiler-feeding purposes.

While portable machines of the bellows and pump types, made suitably for being carried or wheeled about a building, are extremely useful and convenient, whether operated by hand or by electricity derived from existing light or power circuits, there is no doubt that for large public, mercantile, and industrial buildings the most satisfactory form of machine is one laid down as part of a complete installation, including a system of suction mains connecting the vacuum plant with all parts of the building, and having wall fittings at various points for the attachment of hose pipes, each terminated by the mouthpiece by which dust is sucked up and conveyed to the collector forming part of the mechanical plant.

Fig. 1 illustrates a compact cleaner set capable of maintaining the necessary working vacuum for the effective simultaneous operation of two cleaning implements. The apparatus comprises a 2-h.p. electric motor, with switch, rheostat, and cut-outs, a rotary pump driven by belt from the motor, and a dust-collector connected with the pump by flexible hose. The collector is provided with internal baffler filtering medium, and the requisite fittings and mountings. The main suction pipe is connected to the collector, from which dust is removed for disposal at such intervals as may be necessary. The set illustrated measures 6 ft. 6 in. long by 2 ft. wide by 3 ft. 6 in. high ; these overall dimensions also applying to a form of the set where a petrol motor is provided in place of the electric motor shown.

Larger sets of the stationary type, with 5-h.p. electric or petrol motor, are usually supplied with the essential units arranged so as to be fixed independently, the floor space occupied being about 3 ft. 6 in. wide by from 8 ft. 6 in. to 12 ft. or more according to circumstances. Cleaner sets of this type are supplied with either rotary or piston pump, as may be preferred.

Apparatus of the types described above have been widely used with uniformly satisfactory results in the Houses of Parliament, the Royal Courts of Justice, the British Museum, the King Edward VII. Sanatorium, various Government offices, and numerous important buildings throughout the country.

The advocates of vacuum cleaning on the ejector principle claim that apparatus of the class now to be discussed dispenses with the use of relatively bulky motors, pumps, and dust filters, with their attendant noise, vibration, and risk of breakdown, by substituting a small and compact fitting, occupying no floor space whatever and requiring no attention of any kind.

As examples we select two types of ejector apparatus, one operated by steam and the other by water.

The first is that known in London as the Improved Vacuum Cleaner, and in Manchester as the Atlas Vacuum Cleaner. The ejector, supplied with steam from an existing or specially provided boiler, is fixed on any convenient wall, and on opening the steam-valve a large volume of air is drawn through the main suction pipe, steam and dust-laden air being conducted to a separator, where the dust is collected by centrifugal force and discharged at the bottom of the separator in the form of sludge, while the steam and air escape through an exhaust pipe at the top. The makers claim that the apparatus can be used for cleaning two rooms simultaneously, and point out that when one room has been cleaned the hose can be disconnected without interfering with the conduct of work in the other. This form of ejector plant has been installed at the Royal Automobile Club, Queen Anne's Mansions, the Carlton, Ritz, Picadilly, and Hyde Park Hotels, and other buildings in London and the provinces.

The second ejector system is that introduced two or three years ago by Messrs. A. & P. Steven, and termed the Hydrovakum. The apparatus consists simply of a short piece of iron pipe inside which is an ejector nozzle connected with an interior perforated pipe. It is made in two types, one for low-pressure and the other for high-pressure water. The nature of a typical installation is shown in Fig. 2, where D is the ejector apparatus, W is the water supply pipe controlled by the valve V. The suction-pipe S is provided with couplings C, to which are attached flexible cleaner hose-pipes F when the apparatus is at work. Dust mixed with water is discharged through the trap T direct into the nearest drain.

This apparatus is capable of maintaining the vacuum of about 28 in., when exhausting from two lines of cleaning hose simultaneously. One great advantage it possesses is the automatic disposal of dust into the drain, and another is the entire absence of any auxiliary plant in the form of steam boilers and machinery. The makers have recently adapted their apparatus for use as a combined fire protection and vacuum cleaning system, the operation of which is as follows :—

In case of fire an electric button is pressed, with the result that the direction of water flow is reversed, and the suction pipes are filled with water under pressure and available for discharge through the cleaner-pipes, which thus act the part of fire hose. The electric button is protected by a thin sheet of mica to prevent it from being tampered with by playful or mischievous persons.

The Hydrovakum system of cleaning is one quite suitable for buildings of large size, as may be judged by the fact that it is in use throughout the Midland Railway Hotel, Manchester, and has been adopted for installation at the new premises of the Calico Printers' Association in the same city.

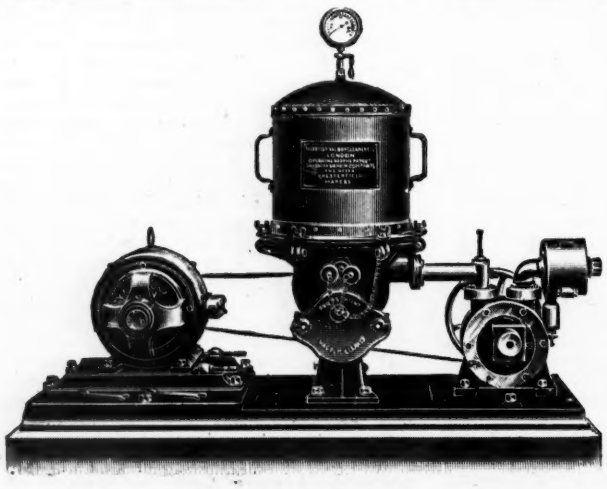


Fig. 1. Electrically-driven Rotary Pump Vacuum Cleaner Set.

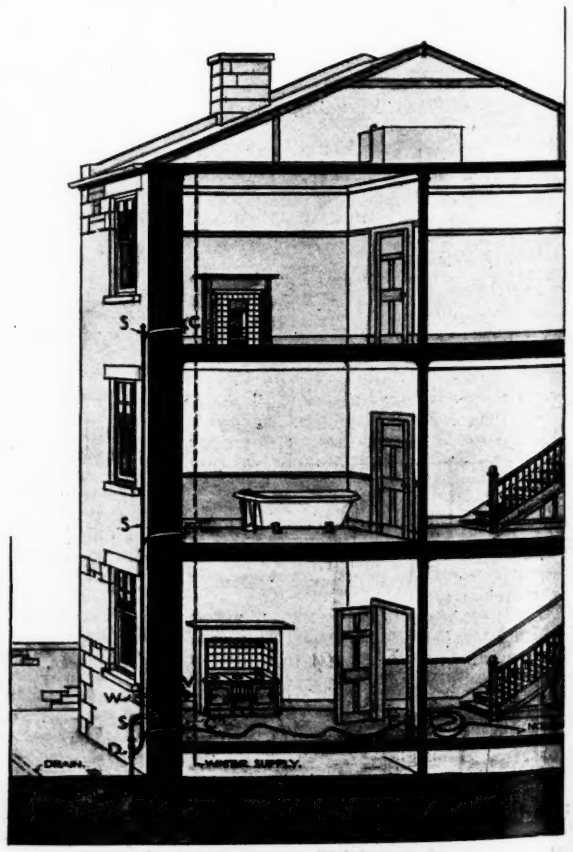


Fig. 2. Hydrovakum Installation.

ELECTROLYTIC DISINFECTANT.

IN the annual Report for 1911 to the Metropolitan Borough of Poplar the Medical Officer, Mr. F. W. Alexander, gives details of the cost of manufacturing, and the mode of using, an electrolytic disinfecting fluid. This fluid, which contains magnesium hypochlorite, has now been made by the Borough for the past six years, and the Medical Officer is fully convinced that there is no more suitable means of producing a cheap, clean, and effective chlorine solution. The disinfectant continues to be added to the water in the swimming-baths in the same proportion as hitherto, viz., one part of chlorine to 2 million parts of water. During the year just past 7,560 gallons of the fluid were supplied to the Poplar, Bow, and Island Baths ; and the addition of this fluid prevents the formation of slime in the water, and also prevents the occurrence of offensive smells when the baths are being cleansed. The average strength of the fluid made is 5 grammes of available chlorine per litre.

The total output of this hypochlorite solution during the year 1911 was 53,063 gallons, for which the total cost of materials was 107*l.* 14s. 4d. Included therein is the principal item of 56*l.* 16s. 7d. for 9,093 Board of Trade units of electricity at 1½d. per unit, which was generated in the Poplar Borough station, and bottles, corks, and labels, 19*l.* 6s. 1d. Since the installation of the plant 200,000 gallons of the fluid have been made for the sum of 380*l.*, out of which 212*l.* was paid for electricity, leaving 168*l.* for raw materials, including water used in the manufacture. Respecting the 212*l.* for electricity, the Report points out that an advantage accrues therefrom to the Borough, because 35*l.*, equal to 16 per cent., is clear profit.

It is quite possible that a saving could be made upon the raw material, but, as the plant is worked absolutely by unskilled men, a rule of

thumb must be adopted. The labour has been considerably lessened by a small electric motor stirring the fluid while making it chemically stable; and quite recently the same motor has been arranged to keep the fluid in the large supply tank constantly stirred, so as to maintain the electrolyte at a constant specific gravity. The process last mentioned was formerly done by hand. The nature of the operation may be learnt from the following summary of the English patent 27,463, of December 12, 1907, granted to F. W. Alexander and his coadjutors.

Magnesium hydroxide, oxide, or carbonate, or preparations containing these substances, are added during the process of manufacturing unstable bleaching liquors, in order to render unstable hypochlorite solutions, and more especially magnesium hypochlorite solutions, stable. The solution is vigorously stirred during the process by means of an ebonite rod having one or more flaps of pure rubber, or alternatively the liquid may be beaten or shaken, or else allowed to percolate through the said magnesium compounds.

As an illustration of the degree of constancy of the solution it may be mentioned that a sample which, on March 17, 1906, contained 4·818 grammes of available chlorine per litre, was found on October 29, 1908, still to contain 3·785 grammes, or nearly 80 per cent. of its original strength. According to a report by Klein, 1 oz. of the fluid to 150 oz. of water will kill the cholera germ in two and a half minutes, and will also kill the typhoid bacillus. Confirmation of the effectiveness of chlorine disinfection is afforded by the large scale treatment of water supplies to towns in many parts of the world, two of which are given below.

In November, 1910 (writes Mr. W. M. Edwards, in the *Transactions of the Canadian Society of Civil Engineers*, 1911), an increase of typhoid fever occurred in the town of Strathcona, on the Saskatchewan River, which he, along with the Medical Officer, investigated. The cause was a contaminated water supply, and to remedy this a permanent plant was erected to effect sterilisation of the water by chlorine.

The plant consists of a powdering and sieving box, a rising current conical mixing-tank, three reinforced-concrete storage tanks, two small boiler feed-pumps, and the process treats the raw water with commercial bleaching-powder, in amounts of 5 lb. to 15 lb. per million gallons of water. The active agents in the powder are calcium chloride and calcium hypochlorite, the latter of which has been found to oxidise the organic matter proportionally to the strength of the dosing solution and its extent of dilution on admixture with the raw water. The calcium compounds increase but very slightly the total hardness of the water. Besides these changes, which are hardly discernible by present methods of analysis, there is the destruction of any pathogenic bacteria which may be present. This was proved by the diminution in the number of typhoid cases in the town after the water began to be treated in this way. The bacterial results were quite definite and satisfactory, any germs that survived the treatment having been found to be the non-injurious ones.

The efficiency of chlorine treatment is also confirmed by Mr. H. Bruns, who, in the *Journal für Gasbeleuchtung*, 1912, gives particulars of the operations conducted upon the Ruhr water supply. In consequence of an outbreak of typhoid fever, bleaching-powder was added in constant proportions, the daily flow of about 35,000 cubic metres of water receiving 1·5 to 2 grammes per cubic metre, equal to 0·5–0·66 gramme of available chlorine. The action of the chlorine was not allowed to continue beyond thirty minutes, when the excess was neutralised by adding sodium thiosulphate corresponding to one-half the weight of bleaching-powder used. The test for bacterium coli in the water after treatment usually showed their absence in 100 cubic centimetres, and thermophile bacteria were reduced to one-fifth.

The treatment was during fifteen weeks, the typhoid epidemic rapidly abating after the inauguration; whilst the cost did not exceed two-tenths of a pfennig per cubic metre of water.

NEW OFFICES, CARDIFF.

Mr. H. Budgen, F.R.I.B.A., is the architect for the proposed new block of offices which is to be erected in Mount Stuart-square. These offices will have a clear floor space front to back of more than 100 ft.

MANCHESTER SEWAGE DISPOSAL.

IN the Report of the Rivers Committee of the Manchester Corporation for the year ending March 31 last it is stated that during the year 11,667 tons of house refuse were delivered at the Withington bunkers and destroyed, in addition to 365 tons of garbage from the screens, making a total of 12,032 tons of refuse destroyed. The volume of sewage delivered at the Withington works during the year was 1,673,345,100 gallons, or an average of 4,597,100 gallons per day.

The volume of sewage delivered at the Davyhulme works from March 30, 1911, to March 27, 1912, inclusive, was 12,382,950,000 gallons. A portion of this quantity, amounting to 129,227,000 gallons, was diluted beyond the five to one limit, up to which the works are designed to treat. The average daily flow of sewage was 34,019,000 gallons, that of the previous year having been 36,182,000 gallons, showing a decrease at the rate of nearly 6 per cent.

The Report states that there are definite indications that the amount of putrescent matter in the Ship Canal water is being gradually reduced. The average effluent during the year shows a higher percentage of purification of the raw sewage than has hitherto been obtained, and it is anticipated that further improvement as the beds now under construction on the Barton area are brought into operation will be effected.

METROPOLITAN WATER BOARD.

LAST Friday, at the first monthly sitting of the Metropolitan Water Board after the recess, the following matters were dealt with:—

New Works in Kent.—The Law and Parliamentary Committee was instructed to prepare and submit to the Board a draft Bill to be introduced in the next session of Parliament to confer on the Board powers for (*inter alia*) the (i.) construction of a reservoir at Shooter's-hill of a capacity of about 1,000,000 gallons; (ii.) construction of a pumping-station at Shooter's-hill and the laying of a main from the Woolwich Common reservoir to the pumping-station, and from thence to the Shooter's-hill water-tower; (iii.) laying of a main from the existing 18-in. main in the Well Hall-road to the proposed new reservoir at Shooter's-hill; (iv.) construction of a reservoir of a capacity of 250,000 gallons on the Board's land at Betsoms-hill, and the laying of a 10-in. main from Westerham-hill pumping-station to the new reservoir and thence to Knockholt reservoir; and (v.) construction of a reservoir on the Board's land at Westerham-hill (capacity 250,000 gallons).

Other Works.—The following amongst other works were authorised to be carried out:—Laying mains at Kempton Park, 1,650*l.*; mains in Stoke Newington, 1,290*l.* and 2,300*l.*; repairing wooden bridge at Island Barn reservoir, 1,250*l.*; repair of houses at High Beech, 146*l.*; and repairs at Ponder's End Mill, 268*l.*

LAW REPORTS.

KING'S BENCH DIVISION, DIVISIONAL COURT.
(Before the LORD CHIEF JUSTICE, Mr. Justice CHANNELL, and Mr. Justice AVORY.)

The Building Construction Company *v.* Hammerstein.

ON Friday, October 18, the Court heard the appeal of Mr. Oscar Hammerstein, of the Opera House, Kingsway, from a decision of an arbitrator in a case in which the Building Construction Company, Ltd., were the claimants for a sum of 20,461*l.* for work done, it was alleged, on behalf of Mr. Hammerstein in the building of his new opera house. The matter came within the scope of the Arbitration Act, 1889, and the arbitrator was Mr. Leonard Stokes, then President of the Royal Institute of British Architects.

Mr. Holman Gregory, K.C., with Mr. Beyfus, were for the appellant, and Mr. Hutchinson, K.C., was for the respondents.

Mr. Beyfus, in opening the case, said the point in the case was whether the arbitrator had jurisdiction to deal with certain claims made by the respondents, and a certain amount turned upon what was meant by the "carcase" of the building. The arbitrator had not only decided that he had jurisdiction, but at first refused to state a case. Mr. Beyfus then read the special case stated by the arbitrator, and it appeared from the agreement between the parties that Mr. Hammerstein was desirous of having constructed the "carcase" of a new opera house on a site at Kingsway, and had asked Mr. Bertie Crewe, architect, of 75, Shaftesbury-avenue, W., to prepare plans and specifications. The contractors agreed to execute the work according to the specification and details included in the bills of quantities to be prepared by Mr. H. E. Pollard, of Lower James-street, Golden-square, W.C. Clause 1 of the agreement said "that in consideration of the sums paid to the contractors they would execute the work according to the drawings," etc., while one of the conditions set forth in the schedule, dealing with the extras, stipulated that the contractor could, when authorised by the architect, vary the work by way of omission or extra to the specifications, while there were other clauses dealing with payment to the contractors, which was by certain instalments at the rate of 85 per cent. of the value of work executed on the building. The case further stated that at the date of the contract no drawings or specification or bills of quantity were in existence, and the arbitrator found as a result of the evidence he heard that while the term "carcase" recited in the contract was somewhat vague and indefinite in regard to the precise matters included therein, the schedule of prices, specification, etc., related, to some extent, to matters which were not included in or covered by the term "carcase."

It appeared that at an interview on October 10, 1910, when the contract was signed, and at which Mr. Hammerstein was present, a conversation took place, the substance of which was as follows:—"As regards the execution of any works in connexion with the completion of the opera house by firms other than the contractors, with the exception of such works as electric lighting, decoration, and stage fittings, which Mr. Hammerstein wished to carry out himself, it was arranged that Mr. Crewe should select such firms as he considered most suitable for the purpose, and in order that Mr. Hammerstein should have one main contractor to deal with the contractors were to sub-contract to the firms selected, in consideration for which they were to receive 10 per cent. upon the net amount of such contracts." A large number of such contracts were afterwards entered into with the sanction of Mr. Crewe and the question was whether these sub-contracts related to matters which came under the definition of the word "carcase." The question was a difficult one, but the evidence given before him (the arbitrator) could be summarised as follows:—Some of the matters dealt with by sub-contractors were included within the meaning of the word "carcase," others were not so included, while others again were doubtful. None of the sub-contractors related to works reserved by the architect for Mr. Hammerstein, such as decoration, electric lighting, or stage fittings. As the work proceeded payments were made on the architect's certificates, but no attempt was made to differentiate between "carcase" and other works, while many works not included in the meaning of "carcase" were contained in the certificates and many had, in fact, been paid for by Mr. Hammerstein. At the same time there was no evidence that Mr. Hammerstein ever saw any of the certificates or was aware that money paid by him included works other than carcase works. Notice of arbitration was given by Mr. Hammerstein on December 20, 1911, when he contended that he had paid the Building Construction Company a sum exceeding that due to them for the works executed, and he denied that the contractors were entitled to an immediate certificate for the payment of the sum of 10,000*l.* in respect of the work, and to the subsequent payment of other sums. Shortly afterwards the contractors delivered a statement of claim, in which they asked for, subject to the final adjustments as to retention money, etc., the whole of the balance of the money due in respect of the opera house, including the whole of the balance due under and by virtue of the sub-contracts. When the arbitration was proceeding, and the arbitrator had heard the contractors' case, it was submitted for the first time on behalf of Mr. Hammerstein that the arbitrator's jurisdiction was limited to disputes or differences in respect to the building of the "carcase" of the opera house, and that, inasmuch as there were included in the claim matters which were outside carcase work, those matters should be eliminated from his consideration. He held that the true inference from the documents and the conduct of the parties was that they intended that the conditions of the contract were to govern all the relations between them in respect of the building, irrespective of carcase work or otherwise.

The question, therefore, for the opinion of the Court was whether that finding was correct, and whether the arbitrator had any jurisdiction to deal in any way by award with any disputes which had arisen between the parties in respect of claims for work done beyond the erection of the carcase.

Mr. Beyfus explained that Mr. Hammerstein had paid the contractors 69,000*l.*, and he contended that that sum was sufficient to meet all claims.

After hearing Mr. Hutchinson the Court dismissed the appeal.

The Lord Chief Justice remarked that Mr. Hammerstein objected to the jurisdiction of the arbitrator to deal with claims for work which he said did not come within the meaning of the word "carcase," and that objection was taken four or five days after the arbitration was commenced. There was no doubt that the certificates, in fact, did include a great many items which were outside the carcase, and on the question whether the amount of the claims was right he did not express any opinion; that was for the arbitrator. In his opinion, there was no real binding contract until the drawings and specifications had been produced by the architect, and he came to the conclusion that the arbitrator had jurisdiction to deal with at least the items which were claims for work which was shown on the drawings and specifications. As to some particular claims of work not included in the specification, and as to which Mr. Hammerstein raised an objection, he would express no opinion.

Justices Channell and Avory concurred, and the appeal was dismissed with costs.

HIGH COURT OF JUSTICE, CHANCERY DIVISION.

(Before Mr. Justice PARKER.)

Claim by Contractors: Messrs. J. Aird & Co. *v.* the Tanjong Pagar Dock Board.

THIS action came on for hearing on Tuesday, the 22nd inst.

Mr. Upjohn, K.C., Mr. Macassey, K.C., and Mr. Schwan appeared for the plaintiffs; and Sir Robert Finlay, K.C., Mr. George Cave, K.C., Mr. Romer, K.C., Sir Hugh Fort, Mr. Mathews, and Mr. Hull for the defendants.

Mr. Upjohn, in opening the case, said his clients were the well-known firm of contractors and the defendants were a Board which had been formed in the Colony of Singapore for the purpose of carrying on certain docks and other works. The litigation arose out of a contract made as long ago as February, 1908, for the construction of a wet dock and other works at Singapore. There were three main issues in the case, and these were as follows:—Firstly, the plaintiffs alleged that the contract was induced by misrepresentations of the defendant Board, and that the contract was made in such circumstances that the Board was responsible as for a fraud. If he (Counsel) succeeded upon that issue, away went the contract. If he did not so succeed, the second issue would arise, and the question which arose there was the inquiring and determining whether the contract works were physically impossible of performance. The third issue was the determination of whether the defendants, by their conduct on at least two occasions, repudiated the contract and gave the plaintiffs the opportunity of determining it, of which they availed themselves. Plaintiffs' case was that the defendants were guilty of such conduct as would amount to repudiation of the contract, and the plaintiffs acted on that footing. Those were the three main issues; but there was also the question of damages. The plaintiffs' claim in the action amounted to about 500,000*l.* The defendants had not counterclaimed in the action, but they had served a notice on the executors of the late Sir John Aird, who in his lifetime was a member of the plaintiffs' firm and a party to the contract, making a claim against his estate of about 1,000,000*l.* His Lordship, however, would not be troubled with the question of damages at the trial, it having been arranged that the determination of the damages, if directed, should stand over for subsequent inquiry. The contract was a very long and complicated one, and abounded in very technical terms in engineering.

It appeared from the statement of the learned Counsel that the plaintiffs received in London from the Crown Agents for the Colonies, acting on behalf of the defendant Board, an invitation to tender for the works to be carried out for the Board at Tanjong Pagar, such invitation being contained in a letter dated July 1, 1907, enclosing a printed book, which contained the conditions of tender, the specimen, alternative forms of tender, notes for tenderers, and schedule of prices containing detailed items of the works proposed to be executed. The plaintiffs' tender for the works proposed to be executed was accepted on or about October 15, 1907, such works being the construction of a lagoon wet dock, having an area of about 24½ acres, length from east to west of about 2,500 ft., and from south to the north of from 400 ft. to 700 ft., and entered from the open sea by an entrance at the south-west corner; the construction of the main wharf at Tanjong Pagar, and the diversion of a certain road, drainage work, and swamp reclamation. Messrs. Coode, Son, & Matthews and Mr. John Rumney Nicholson were to act as joint engineers under the contract. Plaintiffs' case was that the defendants or other agents had made misrepresentations as to the character of the ground in which the walls of the lagoon wet dock were to be constructed by means of sinking trial pits and boreholes; as to the pressure of the mud experienced in sinking certain trials pits and other matters, plaintiffs said that they did not ascertain the untruth of the misrepresentations until they had made considerable progress in the execution of the contract works, and that immediately upon such discovery the plaintiffs avoided the contract and alleged it was no longer binding upon them.

Mr. Upjohn, in the course of his opening address, dealt at great length with the contract specifications and other documents in the case, and referred to the evidence the plaintiffs intended to call.

The learned Counsel upon the construction of the contract said that the first question to be determined was what method of timbering was prescribed. The second was whether there was any provision in the contract requiring the contractors, instead of constructing in trenches, to construct in pockets, or whether this method was not in truth prohibited by the contract. That was the great question raised between the contractors and the engineers in December, 1909. The engineers said, "We require you to do the work, but we do not consider it an extra." He submitted that this work was not within the contract, but that the contract was inconsistent with it. Finding that the ground was of such a nature that the toes of the piles were driven inwards, the work undertaken on the specifications was abandoned.

Counsel then proceeded to deal with the allegations of misrepresentations in the particulars and statement of claim. He said that in the specifications two trial pits were shown—the first 250 ft. east of the entrance to the docks and the other in the narrow part of the entrance to the dock. Both these trial pits were represented as square and as having been sunk through the soft material and mud down to the hard or shale. In the ordinary practice square trial pits were sunk by means of timbering with runners and settings, and this was what was represented on the drawings. The conditions of tender and prices and specifications contained a representation that the information obtained by the Board and its agents showed that it was practicable to construct the dock walls of concrete with timber trenches in the ordinary way. This, said counsel, was done for the purpose of inducing the plaintiffs to tender at a much less price than they otherwise would have done, and to commence the work under the ordinary method of runners and settings. As a matter of fact, said Counsel, the trial pits shown were not sunk to the hard bottom shale as represented. Plaintiffs did not find out the untruth of these statements until they had actually gone on with the work and just before the commencement of the action. He said that the evidence would show that these facts were within the knowledge of the Board and its agents.

Continuing, the learned Counsel said he would ask his Lordship to say that the Board and their engineers were trying to make the contractors do 2,000,000*l.* worth of work on 1,000,000*l.* contract.

The learned Counsel was still addressing the Court when we went to press.

CORONER'S COURT, SHEFFIELD.

The details of a new coroner's court and mortuary in Sheffield were brought to the notice of Mr. Edgar Dudley, who held a Local Government Board inquiry at Sheffield on the 15th inst. into the application of the Corporation to borrow 5,000*l.* for the purpose. The land is situated in Nursery-street, Wicker-lane, and Nursery-lane. It is proposed that on the new site a central court should be provided for the holding of coroner's inquests. The City Architect (Mr. Edwards) explained the various details of improvement in the plans.

LONDON COUNCILS.

Acton.—At the last meeting of the Urban District Council the following recommendation of the Town Planning Committee was considered:—"That application be made to the Local Government Board for authority to prepare a town-planning scheme under the Housing and Town Planning, etc., Act, 1909," in reference to certain land in Acton, Ealing, Willesden, and Greenford. The following amendment was moved by Councillor Kent:—"That, inasmuch as the Council were assured that the total expenditure connected with the adoption of a town-planning scheme would not exceed 75*l.* (of which 34*l.* has already been expended in preliminaries), but now learn that under such scheme the Council must make binding contracts for the widening of existing railway bridges, the construction of additional ones, the provision of new roads, the stopping-up or diverting of existing roads or ways, the relaying of the high-tension cable of the Metropolitan Electric Supply Company, all of which must involve the ratepayers in expenditure greatly in excess of the balance of the 75*l.* above referred to, but the amount of which the Surveyor is unable to estimate, this Council declines to proceed further with a scheme which must add to the existing large loan debt, and thereby increase the heavy burden now borne by the ratepayers." Councillor Hamilton seconded the amendment. He considered a town-planning scheme unnecessary for Acton, as all the property developed since the new by-laws of 1904 came into force had been developed suitably. Ealing had as much to develop as Acton, and yet it had no town-planning scheme. In reply to a question, Councillor Glen said there was no intention to now commit the Council to any other expense beyond the 75*l.* already sanctioned, which, he was told, would amply cover the cost of preparing the maps, etc. Miss Smee: Supposing we apply to the Local Government Board to prepare a scheme, and they give us permission, shall we then be in a position to drop the scheme if it turns out to be expensive or extravagant? Councillor Glen: If the Local Government Board sanctions the scheme and the Council afterwards does not want to go on with it, or any portion of it, then it need not to do so, unless it has has entered into some contract with a landowner to do something, in which case the ordinary rule of contract applies. Councillor Glen then replied to the amendment. He repeated that if the remaining half of Acton was to be developed on lines satisfactory to Acton, the town-planning scheme was necessary. Development in that part of Acton (north) would probably be extremely rapid. At least two railway-stations were to be put there, and the advent of stations necessarily meant more houses. The Council wished to seize the opportunity now of preventing those houses from being put up anyhow. Under its by-laws the Council had no power to waive certain necessary requirements in regard to particular work. Under the Act power was given to waive the by-laws when they were not found to meet the particular needs of the moment. The estates now being laid out contained three kinds of roads—main arteries, about 60 ft. and 70 ft. wide; secondary roads, which required to be made up to bear a considerable amount of traffic; and residential roads, which required very little depth of construction and very little width. If the Council did not adopt the Committee's Report, the time would come when bridges would have to be widened and roads made at enormous expense to the ratepayers. If the needs of a district required a bridge to be widened, it was the duty of the Council, scheme or no scheme, to widen it. Without the Act the Council might have to widen at enormous cost, without getting a penny for betterment, but under the Act the Council could widen without compulsory powers, and get money paid to it in respect of the betterment of the adjoining property. Councillor Kent expressed the view that Councillor Glen had not read to them Clause 61, subsect. 2, which said that if the Local Government Board were satisfied, on any representation after a local inquiry, that the responsible authority had failed to enforce the observance of the scheme or any provision thereon, or execute any works the authority was required to do, the Board might order that authority to execute the work under the scheme, such order might be enforced by mandamus. So that once they got the thing sanctioned they had to go on with it or the Local Government Board would do so. Mr. Glen had said:—"The Council will make binding contracts with the owners to do certain things," and once these were made they would have to be carried through, or the Local Government Board would force them to do so. A

division was then taken, with the result that six voted for the amendment and fourteen against. Councillor Schultess-Young then moved the following addendum to the Committee's recommendation:—"That no application be made to the Local Government Board to prepare a town-planning scheme, except on condition that the Council is not committed to any further expense beyond the 75*l.* already provided, than it would be if the scheme were not in existence, but that the Council retains entire rights of freedom in the matter." The Chairman: Whether you have a town-planning scheme or not, it is obvious that one bridge at the top of Twyford-avenue will have to be widened. Under the town-planning scheme it would not cost you so much. After further discussion the amendment was defeated on the Chairman's casting vote. Several other motions and amendments were put and negatived, and in the result the Committee's recommendation, including Councillor Schultess-Young's suggestion, that the Council should have freedom of action in regard to expenditure beyond the 75*l.* (or thereabouts) already allowed, was carried by ten votes to four.

Barnes.—Plans, etc., have been approved for making-up the second portion of East Sheen-avenue. The Surveyor has been instructed to prepare the necessary plans, etc., for making up Gilpin-avenue, Mortlake, as a new street. At the last meeting of the Council it was decided not to agree with the scheme of the Surrey County Council for the treatment of tuberculosis so far as regards the district under the Council's jurisdiction, but to submit a scheme to the Local Government Board through the County Council providing for an isolation block to be erected in the hospital grounds with the necessary nurses' and administrative accommodation, six shelters for incurable cases, and a dispensary. The cost of these buildings is put at 800*l.*, 500*l.* of which is for the hospital, 120*l.* for shelters, and 180*l.* for the dispensary. Plans have been passed for Mr. George Hunt for four shops and warehouse, Upper Richmond-road, and Mr. R. B. Rowell, for alterations to ten shops in White Hart-lane.

Barnet.—The General Purposes Committee, at the last meeting of the Council, recommended the adoption of draft instructions to architects for the submission of plans for offices and public conveniences, together with the required accommodation. Councillor Thomas proposed, as an amendment, that the recommendations should be referred back to the Committee for further consideration. He said he took this course because he considered that the plans which had been submitted, and which it was proposed to put before the architect, were both ambitious and extravagant. The sum of 5,000*l.* was mentioned as the limit to be given to the architects. This sum he considered was more than the Council were justified in calling upon the ratepayers to spend. In his opinion, 3,000*l.* would be quite sufficient. Councillor Mainland said they did not bind themselves to a sum of 5,000*l.* It was arranged to meet the architects to submit the draft instructions to them, and to request that they should erect offices in the most economical manner possible. The amendment was eventually defeated and the Committee's recommendation agreed to. Later on, Councillor Pearson proposed:—"That all work estimated to cost 5*l.* and over be thrown open to tender upon specifications to be drawn up by the Surveyor or any other person appointed for the purpose." He said that if work costing 5*l.* and upwards was thrown open to tender they would get far better value for money than if carried out by the Surveyor. Councillor Mainland said if the motion was passed they would place themselves in the hands of a ring of builders. Why should they give builders, out of ratepayers' money, a profit when the work could be done equally well themselves, and better? Councillor Pearson said his intention was to invite tenders from people in the district, not outside. He was absolutely certain that work would be done cheaper if thrown open to tender than if done by their own men daywork. In the result the motion was defeated. The Surveyor has been instructed to prepare a plan and estimate for improving the road at the bottom of Church-hill.

Croydon.—The Surveyor has submitted estimates for making up Monahan-avenue, Beddington, at 11s. 4d. per foot, and Links, Seely, Deal, Eastbourne, and Frinton roads, Mitcham, at 11s. a foot. The tender of the Improved Wood Pavement Company, Ltd., has been accepted at 5.542*l.*, for certain wood-paving works at Mitcham; as has also the tender of Mr. E. Iles, sen., Katharine-street, Croydon, at 2.945*l.*, for making up Florence, Heathhurst, and St. Mary's roads, Sanderstead.

Deptford.—Repair works are to be carried out to the roadways and footways in eight thoroughfares at a total estimated cost of 1,151*l.* Plans have been passed for Messrs. Greig & Detmar for the erection of a building on the site of Nos. 90-92 High-street.

Ealing.—The tender of Mr. M. N. Rose has been accepted, at 486*l.*, for making up Temple-road with Brooke's adamant paving. At a recent meeting of the Council a scheme for providing additional accommodation at the Town Hall, at an estimated cost of 500*l.*, fell through.

Enfield.—The tender of Mr. E. J. Betts, Enfield-highway, has been accepted by the Urban District Council, at 395*l.*, for making up part of Farr-road.

Greenwich.—The Housing Committee have decided to make representations to the Local Government Board to the effect that, in their opinion, the London County Council should provide suitable accommodation for the persons displaced by the acquisition by the County Council of property in the neighbourhood and Randall-place and Billingsgate-street, required for school accommodation. Repair works are to be carried out in four roads at an estimated cost of 380*l.* A plan lodged by Captain Warburton on behalf of the Admiralty has been approved for the erection of fifty-three shops in a new street off Trafalgar and Old Woolwich roads.

Hammersmith.—The offer of Messrs. W. F. Nosotti & Co., Budge-row, Cannon-street, E.C., on behalf of certain clients, has been provisionally accepted by the Borough Council to take a plot of land in the Broadway of 1,069 sq. ft., or thereabouts, on a building lease, subject to the lessees being prepared to spend about 2,500*l.* on a suitable building.

Hendon.—For carrying out improvement works in Lawrence-street and Daws-lane the tenders of Mr. F. G. Brummell, Dudden Hill-lane, Willesden, N.W., has been accepted at 934*l.* 13s. 6d. and 1,168*l.* 14s. 8d. respectively, as has also the tender of Messrs. W. Gibson & Co., at 2,300*l.*, for the erection of King Edward Hospital.

Islington.—In connexion with the renewal and relaying of wood-paving in several thoroughfares in the Borough the Borough Council have accepted the tender of Messrs. William Griffiths & Co., Ltd., 35-39, Hamilton House, Bishopsgate, E.C., at 653*l.* 4s., for supplying 56,000 jarrah wood blocks required therefor. The sewer in Lyon-street is to be demolished and one constructed of 9-in. stoneware pipe incased in Portland cement concrete and laid to an improved gradient is to be substituted therefore at an estimated cost of 130*l.*

Kensington.—The tender of Messrs. J. Mowlem & Co., Ltd., Westminster, S.W., has been accepted, at 1,410*l.*, for making up the extension of Highlever-road and a new street. Negotiations are proceeding with Messrs. Derry & Toms, who have under consideration a scheme for rebuilding the front of their premises in Kensington High-street, for effecting a widening of a portion of that road. The quotation of the Improved Wood Pavement Company, Ltd., to extend the wood-paving of Queen's Gate-place-mews for a distance of some 35 yds. has been accepted at 9s. 8d. per super. yard.

Lambeth.—The tender of the Improved Wood Pavement Company, Ltd., has been accepted for supplying and laying creosoted deal paving blocks on concrete foundations, to be prepared by direct labour, in a portion of Clapham-road, at 7s. 6d. per super. yard. A plan, lodged by Mr. J. Wilson, has been approved for the drainage of six houses proposed to be erected on the north side of Glennie-road; as have also plans, lodged by Mr. H. B. Mitchell, for the formation of a new street, 40 ft. wide, leading out of Acre-lane.

Lewisham.—The Borough Council have decided to call the attention of the London County Council to the Report of the Departmental Committee on the use of intercepting traps in house drains recently issued, in which the trap is emphatically condemned, requesting them to take the necessary steps to repeal the by-law (5) made by them under the provisions of sect. 202 of the Metropolis Management Act, 1855. This by-law is as follows:—"Every person who shall erect a new building shall provide in every main drain or other drain of such building which may immediately communicate with any sewer a suitable and efficient intercepting trap at a point as distant as may be practicable from such building, and as near as may be practicable to the point at which such drain may be connected with the sewer. He shall, except in cases where the means of access to be provided in compliance with the preceding by-law, shall give adequate means of access to such trap, provide a separate manhole or other separate means of access to such trap for the purpose of cleansing it." The following plans have been passed:—Messrs. Norfolk & Prior, four houses, Newquay-road; Messrs. J. W. Heath & Son, five houses, Brockley-grove; Mr. T. G. Arnold, dairy, rear 50 and 52, Rusheygreen; Messrs. T. O. King & Son, factory, Staplehurst-road; Messrs. G. Baines & Son, church, Torridon-road; Mr. H. H. Dartnall, five houses and shops, High-street. Mr. R. Stewart has lodged plans with the London County Council for houses in Muirkirk road. Tenders are to be invited for paving and forming Perry-rise and Allan-road, in the latter case so soon as 75 per cent. of the estimated cost is received from the frontagers. Artificial stone in lieu of tar-paving is to be laid in portions of two roads at an estimated cost of 168*l.* The tender of Mr. J. T. Gloag has been accepted, at 499*l.*, for kerbing, channelling, and making up the roadway of part of Manor-lane; as has also the tender of Mr. W. Pearce for paving the footways with artificial stone at 3s. 7d. per yard super. The General Purposes Committee have decided to take the necessary steps for the establishment in the Borough of a tuberculosis dispensary. The cost is estimated at 1,000*l.* The following plans have been passed:—Mr. Percy Roche, ten houses, George-lane and Roxley-road; Mr. A. J. Roddis, six houses, Rushford-road; Messrs. J. W. Heath & Sons, eight houses, Chudleigh-road.

Maldens and Coombe.—At the last meeting of the Urban District Council the Surveyor submitted a plan for the widening of that portion (about 450 ft. in length) of Kingston-road, which could be carried out by a widening of the railway bridge from 20 ft. to 50 ft. span, and presented estimate of the cost of roadworks, reconstruction of forecourts, etc. He was instructed to prepare a more comprehensive scheme covering a distance of about 750 ft., so as to lower the level of the roadway on either side of the bridge, thereby reducing the gradient to one in forty-eight.

Marylebone.—The Borough Council have granted an application of Messrs. Boehmer & Gibbs, 11, Spring-gardens, S.W., to reconstruct the existing vaults and construct new vaults and sub-basements, and fix pavement lights in Castle-street East, Winsley-street, and Adam and Eve-court; and to form two subways in the last-mentioned thoroughfare, subject to protective conditions.

Romford.—The Guardians have approved a plan and estimate of an isolation hospital, and the work is to be carried out by direct labour at a cost of 484*l.*

St. Pancras.—The Public Health Committee of the Council have received a communication from the Local Government Board referring to Paragraph 9 of the First Schedule of the Housing, Town Planning, etc., Act, 1909, and forwarding copies of an Order which the Board, with the concurrence of the Lord Chancellor, have issued, making rules for the purpose of fixing the scale of costs to be applicable on an arbitration under the schedule. Rule 6 in the Order, the Committee states, which is based upon similar wording to that in the schedule of the Act, deals with the question of representation by counsel or expert witnesses, and is as follows:—"Nothing in these rules shall authorise an arbitrator to hear counsel or expert witnesses except in such cases as the Local Government Board direct, and if counsel or expert witnesses are heard by an arbitrator without such direction no costs shall be allowed in respect thereof." Both counsel and expert witnesses, the Committee continue, are excluded from an inquiry into the taking of land as well as from an arbitration as to the value of the land, unless the Board otherwise direct. The Committee consider that the growing practice of legislating by Acts of Parliament drawn in general terms which leave the duty of settling important points of administration to Government Departments by means of orders, rules, and regulations is a custom strongly to be deprecated, as, although the making of an order may be authorised by statute, no opportunity is afforded, in the absence of discussion in Parliament, for criticism or amendment of what are frequently found to be vital points of detail, and they have accordingly decided to forward a strong protest to the Government on the matter.

Stoke Newington.—Repairs are to be carried out to the carriageway of Blackstock-road at a cost not to exceed 100*l.* The tender of Messrs. William Griffiths & Co., Ltd., has been accepted for renewing the present wood-paving in Lordship Park. The estimated cost of the work is put at 4.400*l.*

Westminster.—The Improvements Committee report that in connexion with the recent purchase by the Royal Geographical Society of Lowther Lodge and the proposed rebuilding of the premises they have had under consideration the desirability of acquiring a strip of the garden to provide for a rounding off at the corner of Exhibition and Kensington roads. As the result of negotiations it

(*Continued on page* 491.)

List of Competitions, Contracts, etc.

For some Contracts still open, but not included in this List, see previous issues. Those with an asterisk (*) are advertised in this number: Competitions, iv. Contracts, iv. vi. viii. x.; Public Appointment, xvii.; Auction Sales, xxii. Certain conditions beyond those given in the following information are imposed in some cases, such as: the advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

***** It must be understood that the following paragraphs are printed as news, and not as advertisements; and that while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur.**

Competitions.

OCTOBER 28.—**Blackwood, Mon.**—LIBRARY, ETC.—Cost, 5,000*l.* Particulars from Mr. Lewis Lewis, 8, Albion-terrace, Blackwood, Mon.

OCTOBER 29.—**Glasgow.**—DESIGNS FOR EXTENSION OF MUNICIPAL BUILDINGS.—The Glasgow Corporation invite architects to submit preliminary sketch designs in competition for the extension of the Municipal buildings. Five will be selected to submit complete drawings in final competition. See advertisement in issue of July 12. Dr. Burnet, assessor. Deposit of 1*l.* 1s.

OCTOBER 31.—**Huddersfield.**—TOWN PLANNING.—The Housing and Town Planning Committee of the Huddersfield Corporation invite designs for the laying-out of certain areas within the county borough and part of an adjacent suburb. Premiums 100gs., 50gs., and 25gs. Deposit of 2*l.* 2s. See advertisement in issue of August 2 for further particulars.

OCTOBER 31. — **Llandudno.** — LANDSCAPE GARDENING.—The Llandudno U.D.C invite designs for laying-out land adjoining the Happy Valley, about 20 acres in extent. See advertisement in issue of September 6 for further particulars.

NOVEMBER 1.—**Ottawa.**—MONUMENT TO KING EDWARD VII.—Sketch models in plaster to be sent to the Director of National Art Gallery, Ottawa. Particulars from the Public Works Department, Ottawa (see p. 174, August 9).

* NOVEMBER 4.—**London.**—REGENT'S QUADRANT.—The Committee appointed by the Lords of the Treasury to consider the design for completing the above wish to inspect the designs submitted in the *Builder* Competition, and the authors of those designs are asked to forward them to 1, Whitehall, London, S.W., by November 4. See advertisement (page iv.) in this issue for further particulars

NOVEMBER 25.—**Newcastle-on-Tyne.**—SCHOOLS.—Limited to local architects. Particulars from the Education Office, Northumberland-road, Newcastle on-Tyne.

NOVEMBER 29.—**Langside, Glasgow.**—BRANCH LIBRARY.—Assessor, Mr. Alex. N. Paterson, A.R.S.A. Premiums, 50*l.*, 30*l.*, and 25*l.* Particulars from the Town Clerk, City-chambers, Glasgow.

DECEMBER 1.—**Sofia.**—DESIGNS FOR A ROYAL PALACE AND LAW COURTS.—Particulars from the Commercial Intelligence Branch of the Board of Trade, Basinghall-street, E.C. (see p. 173, August 9, and p. 350, September 27).

DECEMBER 2.—**Carlisle.**—SCHOOL BUILDINGS, ETC.—Particulars from the City Surveyor, 36, Fisher-street, Carlisle.

JANUARY 1, 1913. — **Dublin.**—MUNICIPAL BUILDINGS.—Assessor, Mr. Albert E. Murray, A.R.H.A. Conditions from the City Treasurer, Dublin. Deposit, 2*l.* 2s.

MARCH 1, 1913. — **Rangoon.** — MUNICIPAL BUILDINGS.—The Committee of the Municipality of Rangoon invite designs for the new Municipal Buildings. Honoraria of 300*l.*, 200*l.*, and 100*l.* respectively for first, second, and third. See advertisement in August 2 and 30 for further particulars.

MARCH 1, 1913.—**Winnipeg.**—CITY HALL.—Particulars from Mr. A. Waugh, City Hall, Winnipeg.

* NO DATE. — **Dursley.** — WORKMEN'S DWELLINGS.—The Parochial Committee of the Dursley R.D.C. invite designs for about thirty workmen's dwellings. See advertisement in this issue for further particulars.

NO DATE.—**Jordanhill, Glasgow.**—PROPOSED TRAINING COLLEGE.—Limited to six firms, named in "Competition News," December 1, page 635.

NO DATE. — **Motherwell.**—HIGH SCHOOL.—Dr. Burnet, assessor. Premiums 50*l.*, 30*l.*, and 20*l.*

Contracts.

BUILDING.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

OCTOBER 26. — **Blackpool.** — CONVERSION.—For conversion of single-story workshop into a two-story stores. Specification and quantities from, and plans seen with, Mr. J. S. Brodie, Borough Engineer and Surveyor, Town Hall, Blackpool.

OCTOBER 26.—**Cheltenham.**—BUILDINGS.—For domestic science buildings at Gloucester-road and Naunton Park schools. Architects, Messrs. Chatters & Smithson, 17, Regent-street.

OCTOBER 28. — **Harrogate.** — ALTERATIONS.—Alterations to the end wings of the Victoria Baths. Plans seen, and particulars from Mr. C. E. Rivers, A.M.Inst.C.E., Borough Engineer.

OCTOBER 28.—**Hollybrook.**—COTTAGE.—Erection of a cottage at Hollybrook, near Skibbereen, Co. Cork. Plans and specification with Mr. James F. M'Mullen, M.R.I.A.S., architect, 30, South-mall, Cork.

OCTOBER 29.—**Senghenydd.**—BAKERY.—Erection of a new bakery at Senghenydd for the Senghenydd and Aber Valley Co-operative Society, Ltd. Plans and specifications with Manager.

OCTOBER 29.—**Shipley.**—EXTENSION.—For the reinstatement and extension of dock mill, Shipley. Names to Messrs. J. G. Thompson & Son, fire loss assessors, 9, Parkinson's-chambers, Hustlergate, Bradford.

OCTOBER 29.—**Tynemouth.**—RETAINER.—Construction of a timber retainer on the sea banks at Tynemouth. Drawing and specification seen, and forms of tender from Mr. John F. Smillie, Borough Surveyor, Tynemouth.

OCTOBER 31.—**Barnsley.**—SHOPS, ETC.—Erection of wholesale shops off Midland-street, Barnsley, and providing and fixing of iron fencings, hurdles, gates, and other works of paving, draining, etc. Drawings and specifications seen, and quantities from Mr. J. Henry Taylor, M.Inst.C.E., Borough Surveyor, Manor House, Barnsley.

OCTOBER 31.—**Denholme Gate.**—STORES.—Erection of new stores at Denholme Gate. Messrs. John Haggas & Sons, architects, North-street, Keighley.

OCTOBER 31. — **Ramsgate.** — ROOM.—For the erection of a room for fire-alarm fittings and other works. Plan and specification seen, and particulars from Mr. T. G. Taylor, Borough Engineer, Borough Engineer's Office, Albion House, Ramsgate.

NOVEMBER 1.—**Brittas.**—ROOM, ETC.—For the erection of a new day-room and a heating system at the sanatorium, Crooksling, Brittas, Co. Dublin. Plans and specification by Mr. T. F. McNamara, C.E., architect, 192, Great Brunswick-street. Quantities, with forms of tender, on depost of 1*l.* 1s.

NOVEMBER 1.—**Gledholt.**—HOUSE.—For erection of a detached house in Graemere-road, Gledholt. Drawings seen, and quantities from Messrs. J. B. Abbey & Son, architects and surveyors, 34A, New-street, Huddersfield.

NOVEMBER 1. — **Mallow.** — COTTAGES.—For the building of thirty-nine single cottages. Plans and specifications at the office of the Council. Deposit of 5*l.* per cottage.

NOVEMBER 1. — **Queenstown.**—HOUSES.—Erection of fifty artisans' and labourers' houses in two blocks of seven and two of eight each at Carrignafoy, and in four blocks of five each at Ballyvoloon. Plans, specification, and general conditions by Mr. Joseph A. M'Carthy, C.E., Timoleague. Form of tender and quantities from the Town Clerk. Deposit of 2*l.*

NOVEMBER 2.—**Maidenhead.**—ADDITIONS.—For additions to the engine-house buildings at electric-light station in Braywick-road. Plans seen, and specification and quantities from Mr. P. Johns, Borough Surveyor, Guildhall, Maidenhead.

NOVEMBER 4. — **Aberdeen.**—ALTERATIONS.—For the alteration of the wharf at Albert Quay, and relative works, on the south side of Albert Basin. Drawings with Mr. R. Gordon Nicol, Engineer, Aberdeen. Specification, conditions, and quantities on deposit of 2*l.* 2s.

NOVEMBER 4. — **Bath.** — WALL, ETC.—For the erection of masonry retaining wall, stone balustrade, etc., in the Orange Grove, Bath. Plans, specifications, forms of tender, quantities, and information at the City Surveyor's Office, Guildhall, Bath. Deposit of 2*l.* 2s.

NOVEMBER 4.—**Bolton.**—EXTENSION.—For the Cottage Homes extensions and for the conversion of the Townley's House into a Receiving Home. Plans and quantities from Mr. John Ward, architect, 24, Mawdsley-street, Bolton. Deposit of 5*l.*

NOVEMBER 4 — **Dublin.**—ADDITIONS, ETC.—The alteration of and additions to the East Ward block at King George V. Hospital, Dublin, in the Irish Command. Plans, specification, and conditions of contract at the office of the Director of Barrack Construction, 80, Pall-mall, London, S.W., or the Barrack Construction Office, King George V. Hospital, Dublin. Quantities on deposit of 10s.

NOVEMBER 4.—**Trefechan.**—DWELLINGS.—Erection of workmen's dwellings at Trefechan. Plans, specifications, and form of tenders at the Corporation Offices, Smithfield-road. Mr. Rees Jones, Borough Surveyor.

NOVEMBER 4.—**Ware.**—DEMOLITION.—The Ware Gas Company invites tenders for the demolition of malting premises in Star-street, Ware. Specification of the work at the company's offices, Star-street, Ware.

NOVEMBER 5. — **Tredegar.**—OFFICES.—Erection of additional offices at the Workhouse, Tredegar. Plans and specification seen, and quantities with the architect, Messrs. James & Morgan, FF.R.I.B.A., Charles-street-chambers, Cardiff, on deposit of 1*l.* 1s.

NOVEMBER 6.—**Albury.**—COTTAGES.—For building six cottages at Albury, Herts. Plans and specifications seen and particulars from Mr. E. T. Watts, Surveyor, London-road, Bishop's Stortford.

NOVEMBER 6. — **Gravesend.**—ADDITIONS.—For the erection of an additional building to the vagrant wards at the Workhouse. Plan and specification with the architect, Mr. E. J. Bennett, A.R.I.B.A., No. 191, Parrock-street, Gravesend.

NOVEMBER 8.—**Knockroe.**—BUILDINGS.—For the erection of National School buildings at Knockroe, Boyle, Co. Roscommon. Plans and specification at Boyla Royal Irish Constabulary Barrack. Mr H. Williams, Secretary, Office of Public Works, Dublin.

NOVEMBER 8.—**Limerick.**—EXTENSION.—For the extension of the premises of the Kilfinny Co-operative Agricultural and Dairy Society, Ltd., Kilfinny, Co. Limerick. Plans and specification with Mr. J. Fox, Manager and Secretary.

NOVEMBER 11.—**Cleethorpes.**—BANDSTAND, ETC.—For erection of a bandstand at the end of the Kingsway and two shelters in the bastions of the parade. Plans seen, and specifications and forms of tender from Mr. C. H. Waithman, A.M.Inst.C.E., Engineer and Surveyor, Council House, Cleethorpes.

* NOVEMBER 14.—**Westoning.**—SCHOOL.—The Bedfordshire C.C. invite tenders for a new elementary school. See advertisement in this issue for further particulars.

NOVEMBER 18.—**Huntingdon.**—COTTAGE HOMES.—Erection of proposed Cottage Homes at Huntingdon. Names to the Clerk to the Guardians.

* NOVEMBER 19.—**Portsmouth.**—OFFICES AND CONVENIENCE.—The Portsmouth B.C. invite tenders for boatswains' office, meters' office, labourers' room, and gentlemen's convenience at Flathouse Wharf. See advertisement in this issue for further particulars.

* NOVEMBER 21.—**Upper Clapton.**—LIBRARY.—The Hackney B.C. invite tenders for branch library building in Northwold-road, Upper Clapton. See advertisement in this issue for further particulars.

NOVEMBER 22.—**Norwich.**—SHELTER.—For erection of a shelter at the city cemetery in place of one recently destroyed by fire. Plans, specification, and quantities seen, and forms of tender from Mr. A. E. Collins, M.Inst.C.E., City Engineer, Guildhall, Norwich.

NO DATE.—**Cardiff.**—ROOM.—Erection of new billiard-room, etc., at Radyr Chain, near Cardiff. One guinea deposit for quantities to Messrs. Ivor Jones & Percy Thomas, architects, 18, St. Mary-street, Cardiff.

NO DATE. — **Crigglestone.**—HOUSES.—Erection of two houses at Great Cliffe, Crigglestone. Messrs. Massie & Holdsworth, architects, Town Hall-chambers, King-street.

NO DATE.—**Cushendall.**—PREMISES.—For completion of premises at Cushendall for Mr. Patrick M'Allister. Plans, specifications, and particulars with Mr. James A. Hanna, architect, Ocean-buildings, Belfast.

NO DATE.—**Deaf Hill.**—HALL, ETC.—Erection of a church hall and institute at Deaf Hill (Trimdon Station). Messrs. Clark & Moscrop, FF.R.I.B.A., architects, Feetham, Darlington.

NO DATE. — **Hebden.**—ADDITIONS.—Alterations and additions to a detached residence at Hebden for Mr Thomas Kitching. Mr. James Hartley, architect, Skipton.

NO DATE. — **Thurnscoe.** — PICTURE PALACE.—Erection of a picture palace in Liddett-lane, Thurnscoe. Mr. Ernest W. Dyson, Lic.R.I.B.A., architect, 10, Regent-street, Barnsley

NO DATE.—**Torquay.**—BUNGALOW.—For bungalow residence at Livermead. Mr. F. G. Moore, A.M.Inst.M.E., architect and surveyor, 9, Fleet-street, Torquay.

ENGINEERING, IRON, AND STEEL.

OCTOBER 26. — **Hetton-le-Hole.**—LIGHTING.—For electric-light installation in Wesleyan church, Hetton-le-Hole. Mr. H. Drummond, Brook Villa, Hetton-le-Hole.

OCTOBER 28.—**Motherwell.**—BRIDGES.—Extension of two underbridges at Motherwell. Drawings at the office of the Company's Engineer, Buchanan-street Station, Glasgow. Specification and schedule on deposit of 2*l.* 2s

ENGINEERING, etc.—*continued.*

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

OCTOBER 31. — **Sheffield.** — BRIDGE.—For the widening of the south-west approach of Hillfoot Bridge, Sheffield. Particulars and forms of tender, with conditions of contract, from Mr. Chas. F. Wike, M.Inst.C.E., City Engineer and Surveyor, Town Hall, Sheffield, on deposit of 1*l.* 1s.

NOVEMBER 2.—**Pontypridd.**—RESERVOIR.—Construction of a service reservoir of 675,000 gallons capacity. Full particulars from the Engineer, 27, Gelliwasted-road, Pontypridd.

✱ NOVEMBER 8.—**Alton.**—HEATING.—The Southampton C.C. invite tenders for low-pressure hot-water apparatus at Council school. See advertisement in this issue for further particulars.

NOVEMBER 9. — **Midleton.** — WELL, ETC.—For sinking a well and erecting a pump in the townland of Lisgoold. Mr. John Stanton, Clerk to the Council, Board-room, Midleton Workhouse.

NOVEMBER 16. — **York.**—RAILWAYS.—Construction of about 1¼ miles of light railways. Conditions, plans, specifications, and quantities, on deposit of 5*l.*, from Mr. H. Craven, Town Clerk, Guildhall, York.

NO DATE.—**Kingskerswell.**—WATER SCHEME.—For a water scheme for Croft Building Estate. Mr. F. G. Moore, A.M.Inst.M.E., surveyor, 9, Fleet-street, Torquay.

FURNITURE, PAINTING, MATERIALS, etc.

OCTOBER 26. — **Calverley.**—PAINTING.—For the renovation of the interior of the Hospital. Specifications from Mr. Wm. Roberts Wilson, Clerk to the Board.

OCTOBER 30. — **Nottingham.**—PAINTING, ETC.—For internal cleaning and painting at various sub-police stations Specifications and forms of tender from the City Architect, Mr. F. B. Lewis, Guildhall, on deposit of 1*l.* 1s.

✱ NOVEMBER 4. — **New South Wales.** — PORTLAND CEMENT.—The Government of New South Wales invite tenders for supply of Portland cement for the year 1913. See advertisement in this issue for further particulars.

NOVEMBER 5. — **London.** — PAINTING, ETC.—For painting and decorating at the Leytonstone Public Library, Granleigh-road, Leytonstone, and the Central Library, High-road, Leyton. Specification, with forms of tender, from Mr. Ernest H. Essex, A.M.Inst.C.E., Engineer and Surveyor to the Council, Town Hall, Leyton.

✱ NOVEMBER 15. — **Lichfield.** — MATERIALS AND REPAIRS. — Tenders are invited for repairs and materials from December 26 next to March, 1914, at Lichfield. See advertisement in this issue for further particulars.

ROADS, SANITARY AND WATER WORKS.

OCTOBER 25.—**Skipton.**—SEWAGE.—Extension of the sewer at Garden-terrace, Flood-root, Woodland-street, and School-lane. Plans and specifications with Mr. A. Rodwell, Surveyor, Skipton.

OCTOBER 28. — **Chelmsford.** — GRANITE.—For supply of 250 tons of rough granite. Forms of tender from Mr. A. S. Duffield, Clerk, 96, High-street, Chelmsford.

OCTOBER 28. — **Dartford.** — FLINTS.—For 150 cubic yds. of chalk flints. Mr. W. Kay, Clerk to the Council, Council Offices, Dartford.

OCTOBER 28.—**Prestwich.**—WORKS.—For works of private street improvements. Conditions of contract, with plan, specification, and quantities at the office of the Surveyor. Deposit of 2*l.* 2s.

OCTOBER 30. — **Llantrisant.** — SEWAGE.—For jointing about 510 lin. yds. of 9-in. and 6-in. diameter stoneware pipe sewer at Tonteg, Llantwit Fardre. Plans and specification seen, and quantities, on deposit of 1*l.*, from Mr. Thomas Saunders, Surveyor's Office, Pontyclun.

OCTOBER 31. — **Kirkcaldy.**—IMPROVEMENT.—For street improvement at the car terminus, Roselyn-street, Gallatown. Plan seen, and specifications and quantities at the Burgh Surveyor's Office.

NOVEMBER 2.—**Hampton Wick.**—GRANITE.—For supply of about 200 yds. of granite. Mr. H. Fawssett, Clerk, Council Offices, High-street, Hampton Wick.

NOVEMBER 4.—**Maldon.**—MAIN.—For laying 370 yds. of 6-in. water main. Specification seen, and form of tender from Mr. T. R. Swales, M.Inst.C.E., Borough Engineer.

NOVEMBER 5. — **Wealdstone.** — GRANITE.—For supply of 800 tons of granite, broken to 2-in. gauge, and 120 tons of granite chippings. Samples to Mr. H. Walker, C.E., Surveyor, Wealdstone.

NOVEMBER 6. — **London.**—ROADS.—For private street works at Devon-road, Barking. Plans seen, and specification, quantities, and form of tender from Mr. C. F. Dawson, Surveyor to the Council, Public Offices, Barking.

NOVEMBER 9.—**Hastings.**—STONE.—For supply of 1,200 yds. of best unbroken blue stone. Forms of tender from the District Surveyor, Mr. D. Paine, Stonelynk Farm, Fairlight, Hastings.

NOVEMBER 9.—**Willington.**—STREET.—For levelling, paving, metalling, channelling, and making good Albion-street and entrance from High-street. Specification and quantities from Mr. J. H. Gardner, Surveyor, Willington, Durham.

NOVEMBER 19. — **Belfast.** — SEWAGE.—For the construction of an outlet sewer. Drawings, specification, and tender forms at the office of the City Surveyor. Deposit of 2*l.* 2s.

Public Appointment.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
*INSTRUCTOR OF HANDICRAFT (WOODWORK)	London County Council	100*l.* per annum	Nov. 2

Auction Sales.

Nature and Place of Sale.	By whom Offered.	Date of Sale.
*DEALS, BATTENS, BOARDS, TIMBER, ETC.—Great Hall, Winchester House, E.C.	Churchill & Sim	Oct. 30
*BUILDING SITE, WESTMINSTER BRIDGE-ROAD—At the Mart	Brodie, Timbs, & Co.	Oct. 30
*FREEHOLD BUILDING ESTATE, WALLINGTON—At the Mart	Debenham, Tewson, Richardson, & Co.	Nov. 19
*FREEHOLD BUILDING SITE, NOTTING HILL GATE—At the Mart	Horne & Co.	Dec. 10
*FREEHOLD ESTATE, LEWISHAM—At the Mart	Daniel Smith, Son, & Oakley	No date.

LONDON COUNCILS—*continued from page 489.*

appears that the Society would be prepared to accept 2,350*l.* for the land required. The Committee have decided to purchase such property, and the Engineer has been instructed to carry out the necessary paving, etc., works in connexion with the improvement, estimated to cost 350*l.* The Committee also report having further considered the subject of their recommendation at the last Council meeting, that, in view of the opposition to the scheme of raising the level of Piccadilly by the Junior Athenæum Club, no further action should be taken in the matter at present. They are now of opinion that the rebuilding of the Sutton Estate Property to the existing elevation would greatly prejudice any future scheme which might be adopted for raising the level of Piccadilly at this point, and they have decided to urge the London County Council to sanction the erection of the building to the increased height of 80 ft. above the proposed new level. Macadam repairs are to be carried out in Princes Gardens and Cambridge-street at an approxmiate cost of 235*l.* Various other repairs are also to be carried out to footways in Chester-street at an estimated cost of 60*l.*

OBITUARY.

Mr. W. F. Unsworth, F.R.I.B.A.

Mr. T. E. Collcutt, Past-President, R.I.B.A., contributes to the current issue of the *Journal* of the Institute some biographical details of the life of the late Mr. William Frederick Unsworth, who died suddenly from heart failure at his residence at Steep, near Petersfield, on the 6th inst., at the age of sixty-one:—"William Frederick Unsworth was articled in 1869 to Messrs. Wilson & Wilcox, of Bath, and after a year's travel in France was for two years in the office of the late George Edmund Street, and for a year with the late William Burges. He started practice in London in the year 1875, and scored his first success in the competition for the Shakespeare Memorial Theatre and Library at Stratford-on-Avon, which he was commissioned to carry out. The design of this building shows a strong feeling towards French Gothic, and it may be allowed that this feeling was in great measure due to the influences which still dominated one who had worked in the office of William Burges. But Unsworth's sympathies, judging from his later work, were more in accord with the best traditions of English Mediævalism, and it was this spirit that influenced him in his later productions. Unsworth brought to the execution of his work an enthusiasm that occasionally was almost feverish in its intensity, and a knowledge of style that gave distinction to all his buildings, whether domestic or ecclesiastical. His detail was especially interesting and charming. Among his architectural works I should like to mention as well worth a visit a small brick-fronted warehouse, built in 1883, which is quite hidden away in Star-yard, at the back of Chancery-lane. Other notable works are his restoration of St. Mary's Church, Horsell, Surrey; Christ Church, Woking, and subsequent enlargement; church at Woodham, Surrey; chapel of the King's School, Warwick; Rossall School Chapel; Sion House, Strabane; houses at Harrogate and Burnham; additions to Selsdon Park, Sanderstead, etc. He was formerly in partnership with Mr. Dodgshun, in Old Queen-street, Westminster; then practised alone in Old Palace-yard, Westminster, and latterly, in conjunction with his son and Mr. Inigo Triggs, at Petersfield. He was elected an Associate of the Institute in 1882, and proceeded to the Fellowship in 1891."

PATENTS.

APPLICATIONS PUBLISHED.*

21,336 of 1911.—Hugo Harold Wurfschmidt: Fountain or reservoir brushes.

21,426 of 1911.—Leduc, Heitz, & Co.: Process for the preparation and application of varnish having a base of cellulose esters.

21,606 of 1911.—Carl August Teske: Joints for tubular structures.

22,960 of 1911.—Edward Vernon Bailey: Means for securing door or other knobs or handles, cupboard turns, or the like, to their spindles.

23,241 of 1911.—Arnold England: Building-blocks or slabs of concrete or similar material.

24,795 of 1911.—Carl Ekberg: Combined floor planer and scraper.

26,150 of 1911.—Walter Charles Benedict: Paving blocks.

26,203 of 1911.—Peter Robertson Pollock: Window guards for window-cleaners' use.

27,096 of 1911. — Frederick Hartnoll Edwards: Means and method of finishing and attaching textile fabrics to floors, walls, and like surfaces.

260 of 1912.—Harry Linton Allensby and Edwin Rudolph Quelch Gibson: Adjustable stock for hand-brickmaking.

201 of 1912.—John Valentine Kaye and Thomas Henry Llewellyn: Door-holding devices.

3,144 of 1912.—Henry James Moysey: Electric lifts of the alternating type and the like.

5,106 of 1912.—Albert Spichtin and Raphael Knoebel: Method of uniting adhesively glass, porcelain, stoneware, and the like, with similar materials, or with articles made of metal.

*All these applications are in the stage in which opposition to the grant of Patents upon them can be made.

8,517 of 1912.—William John Swain: Reinforcements for concrete structures.

9,900 of 1912.—Wilson Henry Sturge: Devices for adjustably suspending electric and other lamps, electroliers, gas pendants, and the like.

10,394 of 1912.—Edward Wingfield Brackenbury: Concrete mixers and the like.

10,932 of 1912.—Joseph Schilling and Michael Gierlich: Device for opening and closing fanlights and the like.

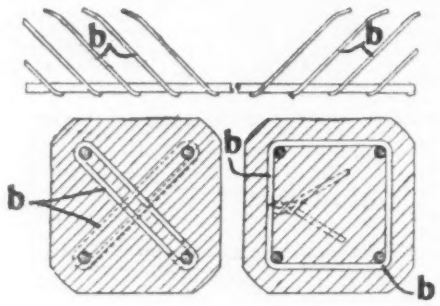
13,506 of 1912.—Carl August Gustafsson and Oscar Arvid Hede: Stayed wooden poles.

16,258 of 1912.—Rickard Aloysius O'Driscoll: Means for heating water.

SELECTED PATENTS.

12,523 of 1911.—British Reinforced Concrete Engineering Company, Ltd., and Gilbert Stanley Heathcote: Reinforced concrete constructions.

This relates to welded reinforcing frames which can be made in standard lengths or sizes, which comprise a bar or bars and parallel, equidistant, transverse, or shear members, which are welded to the main bars and lie in a common plane when brought to the site, but may be bent up as desired. They may be straight and perpendicular to the main



12,523 of 1911.

bars, or be bent herring-bone fashion; in a modification of the latter form applicable to beams, the shear members being bent up out of the original plane. For columns, the members *b* embrace one or two main bars, or may lie between two main bars. Adjacent ends of the members *b* may be welded or twisted together, the members *b* being parallel with the faces of the column. The main bars may be welded end to end when placed in position.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

October 2.—By CECIL LEE MARRIOTT.

Llangarren, Hereford.—Treverven Farm, 109 a. 2 r. 11 p., f.	£2,000
Lyonshall, Hereford.—Penrhos and Yaidon Farms, 187 a. 3 r. 33 p., f.	3,350
Pasture, 11 a. 0 r. 30 p., f.	425
Bryngarren, Radnor.—Wern Farm, 116 a. 0 r. 9 p., f.	1,340

October 3.—By WALLER & KING.

Southampton.—57, Above Bar (s.), f., p.	3,000

October 4.—By MORRIS, MARSHALL, & POOLE.

Llanllugan, Montgy.—Eight farms, 1,423 a. 1 r. 18 p., f.	6,090

October 9.—By KNIGHT, FRANK, & RUTLEY.

St. John's Wood.—8, Hamilton-ter., u.t. 10 yrs., g.r. 10l., p.	590
Shepperton, Middlesex.—Weir Cottage and 2¼ a., f.	3,000

By KEMSLEY.

Vange, Essex.—Shop and house, 1¼ a., f.	340
Romford, Essex.—Oak Cottage and Oakdene, f., w.r. 31l. 4s.	280

October 10.—By HENRY HENDRIKS & Co.

Edgbaston, Warwick.—32, George-rd., u.t. 7 yrs., g.r. 6l., y.r. 55l.	120
217 to 227 (odd), Speedwell-rd., u.t. 84 yrs., g.r. 15l., w.r. 87l. 2s.	250
Handsworth, Warwick.—31, 33, and 35, Turville-rd., f., w.r. 93l. 12s.	750
Hockley, Warwick.—Temple-pl., u.t. 55 yrs., g.r. 25l. 10s., w.r. 130l. 13s.	130

October 11.—By KNIGHT, FRANK, & RUTLEY.

Monkleigh, Devon.—Annery estate, 422 a., f. (including timber)	16,000

By E. S. BEARD & DANIELL.

Brightlingsea, Essex.—6, Queen-st. and plot of land, f.	230
Park-rd., Gresham Villa, f.	360
New-st., Freemasons' Tavern, f.	1,060
47 to 53 (odd), Sidney-st., f.	400

October 14.—By JONES, LANG, & Co.

Whitechapel.—117 to 135 (odd), Leman-st., and 11 to 14, Hooper-st., f., y.r. 778l. 12s.	9,000

By WALLER & Co.

Belgravia.—70, Chester-sq., u.t. 11 yrs., g.r. 25l., p.	1,500

By T. B. WESTACOTT & SONS.

St. Pancras.—Churchway, corner plot of land, f.	250

By ROBERT NEWMAN.

Heston, Middlesex.—Main rd., enclosure 2½ a., f.	£650
Main rd., Nicholes Cottages, f., w.r. 35l. 2s.	275
Heston-gdns., cottage and 3 a., f.	1,000
Kendalls Cottage, f., w.r. 13l.	185
Two enclosures, 21 a., f.	1,780

October 15.—By KNIGHT, FRANK, & RUTLEY.

Old Kent-rd.—Amery-pl., f.g. rents 98l. 17s., reversion in 39 yrs.	1,550
Kensington.—31, Lansdowne-rd., f., y.r. 90l.	1,420
29, Lansdowne-rd., f.g. rents 18l. 3s., reversion in 27 yrs.	680
Bayswater.—23 and 27, Pembridge-rd. (s.), f., y. and e.r. 104l.	1,250
33, 35, 37, and 41, Pembridge-rd. (s.), f., y.r. 201l.	2,600

By MARKS & BARLEY.

Ratcliff.—Broad-st., Holts Marine Brewery, with 28 tied houses, f. and l.	60,000
Camberwell.—Camberwell New-rd., Athenæum Tavern, lease for 30 yrs., at 650l. (reducible to 150l.), y.r. 330l.	4,000

By EDWARD WOOD.

Forest Gate.—110, 112, and 114, Halley-rd., u.t. 83 yrs., g.r. 7l. 10s., w.r 72l. 16s.	450
Pimlico.—99, Alderney-st., u.t. 19 yrs., g.r. 8l. 8s., w.r. 85l. 16s.	200
Croydon.—2 and 4, Parkview-rd., u.t. 94 yrs., g.r. 1 l. 10s., w.r. 63l. 14s.	300

October 16.—By FOSTER & CRANFIELD.

Wallington, Surrey.—3, Stanley-parade (s.), f., y.r. 40l.	450

By HUNTER & HUNTER.

Fulham.—2, Star-rd., and stabling, f., y.r. 85l.	1,925
Surbiton.—34, 35, 36, and 40, St. Andrew's-sq., f.	910

By DOUGLAS, YOUNG, & Co.

Blackheath.—Halstow and Ormiston roads, f.g. rents 10 l. 6s., reversion in 73 and 74 yrs.	2,234

By E. HUGH HENRY.

Clapham.—Cavendish-rd., f.g. rents 15l. 6s., reversion in 12 yrs.	1,040
King's-av., f.g.r. 20l., reversion in 22 yrs.	500
Lyham-rd., f.g. rents 70l. 19s., reversion in 12 yrs.	2,520
Lyham-rd., f.g.r. 6l., reversion in 22 yrs.	190

By EDWIN EVANS & SONS.

Belvedere, Kent.—Erith-rd., f.g. rents 36l. 15s., reversion in 91 yrs.	785
Brixton.—Rushcroft-rd., Mayfield House (flats), u.t. 76 yrs., g.r. 36l., gross rentals 231l. 8s.	525
Kennington.—35, Kennington-rd. and Cornwall Works, f. and c., gross rentals 638l. 6s.	3,000
Clapton.—111, Chatsworth-rd., u.t. 67 yrs., g.r. 9l., y.r. 42l.	260
North Woolwich.—8, High-st. (s.), f., y.r. 40l.	50
30 and 32, High-st., f., w.r. 65l.	460
25 to 33 (odd), Claremont-st., f., w.r. 130l.	500

October 17.—By H. J. BLISS & SONS.

Minories.—48, Church-st. (s.), f., y.r. 39l.	360
Leytonstone.—58 and 60, Victoria-rd., f., y. and w.r. 46l. 16s.	370

By JOHN G. DEAN & Co.

Battersea.—5, Vardens-rd., f., y.r. 38l.	405

By MARTEN & CARNABY.

West Norwood.—155, Hamilton-rd., u.t. 939 yrs., g.r. 2l., w.r. 26l.	180

By NEWBON & SHEPHARDS.

Dalston.—70 and 72, Shrubland-rd., u.t. 35½ yrs., g.r. 8l. 10s., y. and w.r. 69l.	330
Islington.—12, Dagmar-ter., u.t. 33½ yrs., g.r. 6l. 6s., w.r. 52l.	125
Hoxton.—86, Gopsall st., u.t. 19½ yrs., g.r. 4l., w.r. 42l. 18s.	100
Kingsland.—39, Dunston-st., u.t. 6½ yrs., g.r. 3l., w.r. 33l. 16s.	45
Islington.—Bride-st., f.g.r. 4l., reversion in 8 yrs.	195

By STIMSON & SONS.

Peckham.—1 to 10, Sartor-rd., f., w.r. 267l. 16s.	1,860
Walworth.—34, 36, 38, and 40, Runham-st., u.t. 46 yrs., g.r. 14l., w.r. 198l. 18s.	500
31 to 39 (odd), Chapter-rd., u.t. 36 yrs., g.r. 20l., w.r. 193l. 14s.	550
Fulham.—33 and 39, Bishops-rd., u.t. 78 yrs., g.r. 12l. 12s., w.r. 93l. 12s.	450
Wimbledon.—41, 47, and 49, St. George's-rd., u.t. 54 yrs., g.r. 18l., y. and e.r. 107l.	650

By ROBERT NEWMAN

Ickenham, Middlesex.—Freehold house	225

October 18.—By ELLIOTT, TOMBS, & Co.

Hammersmith.—8 and 10, Studland-st., u.t. 55 yrs., g.r. 10l., w.r. 114l. 8s.	575

By ROBSON & PERRIN.

Highgate.—38 and 40, Gresley-rd., f., y.r. 84l.	1,000
Finsbury Park.—21, Gillespie-rd., u.t. 64 yrs., g.r. 6l. 6s., e.r. 30l.	160

By WILTSHIRE & Co.

Finchley.—45, Park Hall-rd., u.t. 70 yrs., g.r. 6l. 6s., e.r. 34l.	275

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; b.h. for beerhouse; p.h. for public-house; o. for offices; s. for shops; ct. for court.

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PRICES CURRENT OF MATERIALS.

*** **Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.**

BRICKS, &c.

Per 1000 Alongside, in River.

	£ s. d.
Best Stocks	1 14 0
Picked Stocks for Facings	2 10 0

Per 1000, Delivered at Railway Depôt.

	£ s. d.		£ s. d.
Flettons	1 13 0	Best Blue Pressed Staffordshire	3 15 0
Best Fareham Red	3 12 0	Do. Bullnose	4 0 0
Best Red Pressed Ruabon Facing	5 0 0	Best Stourbridge Fire Bricks	4 0 0

GLAZED BRICKS—

Best White, Ivory, and Salt Glzd. Str'tch'rs	12 7 6	Double Headers	14 17 6
		One Side and two Ends	18 17 6
Headers	11 17 6	Two Sides and one End	19 17 6
Quoins, Bullnose, and 4½ in. Flats	15 17 6	Splays & Squints	17 7 6
D'ble Stretchers	17 17 6		

Second Quality £1 10s. per 1000 less than best.

	s. d.	
Thames and Pit Sand	6 9	per yard, delivered.
Thames Ballast	5 6	" "
Best Portland Cement	36 0	per ton, "
Best Ground Blue Lias Lime	19 0	" "

NOTE—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... 13s. 6d. per yard delivered.
Stourbridge Fireclay in sacks 27s. 0d. per ton at rly dpt.

STONE.

Per Ft. Cube.

	s. d.
BATH STONE — delivered on road waggons, Paddington Depôt	1 7½
Do. do. delivered on road waggons, Nine Elms Depôt	1 9

PORTLAND STONE (20 ft. average)—

Brown Whitbed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2 3
White Basebed, delivered on road waggons Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2 4½

Per Ft. Cube, delivered at Railway Depôt.

	s. d.		s. d.
Ancaster in blocks	1 10	Closeburn Red Freestone	2 0
Beer in blocks	1 6	Red Mansfield Freestone	2 4
Greenshill in blocks	1 10	Talacre & Gwespyr Stone	2 4
Darley Dale in blocks	2 4		
Red Corsehill in blocks	2 3		

YORK STONE—*Robin Hood Quality.*

	s. d.
Per Ft. Cube, Delivered at Railway Depôt. Scappled random blocks	2 10

Per Ft. Super., Delivered at Railway Depôt.

6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 3
6 in. rubbed two sides ditto, ditto	2 6
3 in. sawn two sides slabs (random sizes)	0 11½
2 in. to 2½ in. sawn one side slabs (random sizes)	0 7
1½ in. to 2 in. ditto, ditto	0 6

HARD YORK—

Per Ft. Cube, Delivered at Railway Depôt. Scappled random blocks	3 0

Per Ft. Super., Delivered at Railway Depôt.

6 in. sawn two sides landing to sizes (under 40 ft. super.)	2 8
6 in. rubbed two sides ditto	3 0
3 in. sawn two sides slabs (random sizes)	1 2
2 in. self-faced random flags	0 5

SLATES.

Per 1000 of 1200 at Railway Depôt.

In. In.	£ s. d.	In. In.	£ s. d.
20×10 best blue Bangor	13 2 6	20×10 best Eu. ka unfading green	15 17 6
20×12 ditto	13 17 6	20×12 ditto	18 7 6
20×10 1st quality ditto	13 0 0	18×10 ditto	13 5 0
20×12 ditto	13 15 0	16×8 ditto	10 5 0
16×8 ditto	7 5 0	20×10 permanent green	11 12 9
22×10 best blue Portmadoc	12 12 6	18×10 ditto	9 12 6
16×8 ditto	6 12 6	16×8 ditto	6 12 6

TILES.

At Railway Depôt.

	s. d.		s. d.
Best plain red roofing (per 1000)	42 0	Best "Hartshill" brand, plain sand-faced (per 1000)	45 0
Hip and Valley (per doz.)	3 7	Do. pressed (per 1000)	42 6
Best Broseley (per 1000)	50 0	Do. Ornamental (per 1000)	47 6
Do. Ornamental (per 1000)	52 6	Hip (per doz.)	4 0
Hip and Valley (per doz.)	4 0	Valley (per doz.)	3 6
Best Ruabon red, brown, or brindled (Edw'ds) (per 1000)	57 6	Staffords. (Hanley) Reds or Brindled (per 1000)	42 6
Do. Ornamental (per 1000)	60 0	Hand-made sand-faced (per 1000)	45 0
Hip (per doz.)	4 0	Hip (per doz.)	4 6
Valley (per doz.)	3 0	Valley (per doz.)	3 6

WOOD.

BUILDING WOOD.	At per standard.					
	£	s.	d.		£	s. d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	14	0	0	...	15	10 0
Deals: best 3 by 9	13	10	0	...	14	10 0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	11	10	0	...	12	10 0
Battens: best 2½ by 6 and 3 by 6	0	10	0	...	less than 7 in. and 8 in.	
Deals: seconds	1	0	0	less thn best.		
Battens: seconds	0	10	0	»		»
2 in. by in. and 2 in. by 6 in.	9	10	0	...	10	10 0
2 in. by 4½ in. and 2 in. by 5 in.	9	0	0	...	10	0 0
Foreign Sawn Boards—						
1 in. and 1½ in. by 7 in.	0	10	0	more than battens.		
¼ in.	1	0	0	»		
Fir timber: best middling Danzig or Memel (average specification)	At per load of 50 ft.					
	5	0	0	...	5	10 0
Seconds	4	10	0	...	5	0 0
Small timber (8 in. to 10 in.)	3	17	6	...	4	0 0
Small timber (6 in. to 8 in.)	3	5	0	...	3	10 0
Swedish balks	2	12	6	...	3	0 0
Pitch-pine timber (30 ft. average)	5	5	0	...	6	0 0

JOINERS' WOOD.	At per standard.					
	£	s.	d.		£	s. d.
White Sea: first yellow deals, 3 in. by 11 in.	24	10	0	...	25	10 0
3 in. by 9 in.	22	10	0	...	23	10 0
Battens, 2½ in. and 3 in. by 7 in.	17	0	0	...	18	0 0
Second yellow deals, 3in. by 11in.	19	0	0	...	20	0 0
» » 3 in. by 9 in.	18	0	0	...	19	10 0
Battens, 2½ in. and 3in. by 7 in.	14	0	0	...	15	0 0
Third yellow deals, 3 in. by 11 in. and 9 in.	14	0	0	...	15	0 0
Battens, 2½ in. and 3 in. by 7 in.	11	10	0	...	12	10 0
Petersburg: first yellow deals, 3 in. by 11 in.	21	10	0	...	22	10 0
Do. 3 in. by 9 in.	18	10	0	...	19	10 0
Battens	14	0	0	...	15	0 0
Second yellow deals, 3 in. by 11 in.	16	10	0	...	17	10 0
Do. 3 in. by 9 in.	15	0	0	...	16	0 0
Battens	11	10	0	...	12	10 0
Third yellow deals, 3in. by 11 in.	13	10	0	...	14	10 0
Do. 3 in. by 9 in.	13	0	0	...	14	0 0
Battens	10	10	0	...	11	0 0
White Sea and Petersburg—						
First white deals, 3 in. by 11 in.	15	0	0	...	16	0 0
» » 3 in. by 9 in.	14	0	0	...	14	10 0
Battens	11	10	0	...	12	10 0
Second white deals, 3in. by 11in.	14	0	0	...	15	0 0
» » 3 in. by 9 in.	13	0	0	...	14	0 0
Battens	10	10	0	...	11	0 0
Pitch-pine: deals	19	0	0	...	21	0 0
Under 2 in. thick extra	0	10	0	...	1	0 0
Yellow Pine—First, regular sizes	18	0	0	upwards.		
Oddments	32	0	0	»		
Seconds, regular sizes	33	0	0	»		
Oddments	28	0	0	»		
Kauri Pine—Planks per ft. cube.	0	4	6	...	0	6 0

WOOD (*Continued*).

JOINERS' WOOD (*Continued*)—	£	s.	d.		£	s. d.
Danzig and Stettin Oak Logs—						
Large, per ft. cube	0	3	0	...	0	3 9
Small » »	0	2	6	...	0	2 6
Wainscot Oak Logs, per ft. cube	0	6	6	...	0	8 0
Dry Wainscot Oak, per ft. sup. as inch	0	0	10	...	0	1 0
¼ in. do. do.	0	0	8½	...		—
Dry Mahogany—Honduras, Tabasco, per ft. super. as inch..	0	0	10	...	0	1 1
Selected, Figury, per ft. super. as inch	0	1	6	...	0	2 6
Dry Walnut, American, per ft. super. as inch	0	0	10	...	0	1 0
Teak, per load	18	0	0	...	22	0 0
American Whitewood planks, per ft. cube	0	5	0	...	0	6 0
Prepared Flooring, etc.—	Per square.					
1 in. by 7 in. yellow, planed and shot	0	13	6	...	0	17 0
1 in. by 7 in. yellow, planed and matched	0	14	0	...	0	18 0
1¼ in. by 7 in. yellow, planed and matched	0	16	0	...	1	0 0
1 in. by 7 in. white, planed and shot	0	12	0	...	0	14 6
1 in. by 7 in. white, planed and matched	0	12	6	...	0	15 0
1¼ in. by 7 in. white, planed and matched	0	15	0	...	0	16 6
¾ in. by 7 in. yellow, matched and beaded or V-jointed brds.	0	11	0	...	0	13 6
1 in. by 7 in. » »	0	14	0	...	0	18 6
¾ in. by 7 in. white » »	0	10	0	...	0	11 0
1 in. by 7 in. » »	0	12	9	...	0	15 0

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton.					
	£	s.	d.		£	s. d.
Rolled Steel Joists, ordinary sections	8	10	0	...	9	10 0
Compound Girders, ordinary sections	10	0	0	...	11	0 0
Steel Compound Stanchions	11	10	0	...	12	10 0
Angles, Tees, and Channels, ordinary sections	10	0	0	...	11	0 0
Flitch Plates	10	0	0	...	11	0 0
Cast Iron Columns & Stanchions, including ordinary patterns	8	0	0	...	8	10 0

METALS.

IRON—	Per ton, in London.					
	£	s.	d.		£	s. d.
Common Bars	9	0	0	...	9	10 0
Staffordshire Crown Bars, good merchant quality	9	5	0	...	9	15 0
Staffordshire "Marked Bars"	11	0	0	...		—
Mild Steel Bars	9	5	0	...	9	15 0
Hoop Iron, basis price	10	0	0	...		—
» » Galvanised	17	10	0	...		—

(*And upwards, according to size and gauge.)

METALS (*Continued*).

IRON (*Continued*)—	Per ton, in London.					
	£	s.	d.		£	s. d.
Sheet Iron Black—						
Ordinary sizes to 20 g.	10	5	0	...		—
» » 24 g.	11	5	0	...		—
» » 26 g.	12	15	0	...		—
Sheet Iron, Galvanised, flat, ordinary quality—						
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	15	10	0	...		—
Ordinary sizes to 22 g. and 24 g.	16	0	0	...		—
» » 26 g.	17	0	0	...		—
Sheet Iron, Galvanised, flat, best quality—						
Ordinary sizes to 20 g.	18	10	0	...		—
» » 22 g. and 24 g.	19	0	0	...		—
» » 26 g.	20	10	0	...		—
Galvanised Corrugated Sheets—						
Ordinary sizes, 6ft. to 8ft. 20 g.	15	0	0	...		—
» » 22 g. and 24 g.	15	5	0	...		—
» » 26 g.	16	15	0	...		—
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker	12	10	0	...		—
Best Soft Steel Sheets, 2 g. & 24 g.	13	10	0	...		—
» » » 26 g.	15	10	0	...		—
Cut Nails, 3 in. to 6 in.	11	0	0	...	11	10 0

(Under 3 in., usual trade extras.)

LEAD, &c.

Delivered in London.

	£	s.	d.		
LEAD—Sheet, English, 4lb. and up	24	5	0	...	—
Pipe in coils	24	15	0	...	—
Soil pipe	27	15	0	...	—
Compo pipe	27	15	0	...	—
ZINC—Sheet—	In casks of 10 cwt.				
Vielle Montagne	33	15	0	...	—
Silesian	33	10	0	...	—

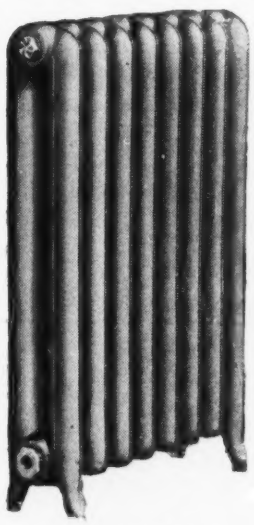
Zinc, in bundles, 1s. per cwt. extra.

COPPER—					
Strong Sheet per lb.	0	1	1	...	—
Thin » »	0	1	2	...	—
Copper nails »	0	1	0	...	—
Copper wire »	0	1	0	...	—
BRASS—					
Strong Sheet »	0	1	0	...	—
Thin »	0	1	1	...	—
TIN—English Ingots »	0	2	3	...	—
SOLDER—Plumbers' »	0	0	10½	...	—
Tinmen's »	0	1	1½	...	—
Blowpipe »	0	1	3½	...	—

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.*

Per Ft., Delivered.

15 oz. thirds	2½d.	26 oz. fourths	4d.
» fourths	2d.	32 oz. thirds	5½d.
21 oz. thirds	3½d.	» fourths	4½d.
» fourths	3d.	Fluted Sheet, 15 oz.	3d.
26 oz. thirds	4½d.	» 21 oz.	4d.



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Per Ft., Delivered.

⅛	Rolled plate.....	2½d.	Figured Rolled, Oxford Rolled, Oceanic, Arctic, Muffled, and Rolled Cathedral, white..... 3½d.
¼	Rough rolled and rough cast plate..	2½d.	
½	Rough rolled and rough cast plate..	3d.	Ditto, tinted... ..... 5d.

* Not less than two crates.

OILS, &c.		£	s.	d.
Raw Linseed Oil in pipes	per gallon	0	2	9
" " " in barrels.....	"	0	2	10
" " " in drums	"	0	2	11
Boiled " " in barrels.....	"	0	2	11
" " " in drums.....	"	0	3	2
Turpentine in barrels	"	0	2	8
" in drums	"	0	2	10
Genuine Ground English White Lead,	per ton	32	0	0
Red Lead, Dry	"	28	0	0
Best Linseed Oil Putty	per cwt.	0	10	6
Stockholm Tar	per barrel	1	12	0

VARNISHES, &c.	Per gallon. £	s.	d.
Fine Pale Oak Varnish	0	8	0
Pale Copal Oak	0	10	6
Superfine Pale Elastic Oak	0	12	6
Fine Extra Hard Church Oak	0	10	0
Superfine Hard-drying Oak, for seats of Churches	0	14	6
Fine Elastic Carriage	0	12	0
Superfine Pale Elastic Carriage	0	16	0
Fine Pale Maple	0	10	0
Finest Pale Durable Copal	0	18	0
Extra Pale French Oil	1	1	0
Eggshell Flating Varnish	0	18	0
White Pale Enamel.....	1	4	0
Extra Pale Paper	0	12	0
Best Japan Gold Size	0	10	6
Best Black Japan.....	0	16	0
Oak and Mahogany Stain	0	9	0
Brunswick Black	0	8	0
Berlin Black	0	16	0
Knotting	0	10	9
French and Brush Polish	0	10	6

TO CORRESPONDENTS.

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TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than 6 p.m. on Wednesday.* [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l.* unless in some exceptional cases and for special reasons.]

* Denotes *accepted.* † Denotes *provisionally accepted.*

CHISWICK.—For the making-up of Grantham-road, for Chiswick Urban District Council:—

G. Wimpey & Co.	£1,511	F. G. Brummell	£1,329
E. Free & Sons	1,465	J. Ball, Chiswick*	1,237

CROYDON.—For extension of offices, Katherine-street, Croydon, for the Croydon Gas Company. Messrs. Berney & Son, architects, George-street, Croydon:—

Bacon & Son	£16,150	J. Smith & Sons, Ltd.	£14,740
Gathercole Bros.	15,700	D. Waller	14,640
W. Smith & Sons	15,682	Worsfold & Sons	14,489
Everitt & Sons, Ltd.	15,594	E. J. Saunders	14,575
Akers & Co.	15,349	D. W. Barker & Sons, Ltd.	13,843
Cropley Bros.	14,783		

FRESHWATER (I.W.).—For additions and alterations to St. Andrew's Church, Norton, for the Trustees:—

Franklin (Doddington), Ltd.	£1,816 0	T. & E. W. Jenkins	£1,672 10
W. H. Paul	1,719 0	W. White	1,640 0
S. Salter	1,685 0	A. P. Williams	1,496 0

GRIMSBY.—For erection of a new Council school in Victoria-street. Mr. H. C. Scaping, architect, Court-chambers, Grimsby. Quantities by Mr. J. Watson, F.S.I., Hull:—

W. Kirton	£15,525 0 0
Gilbert & Hall	14,165 10 0
Hewins & Goodhand	13,658 0 0
Wilkinson & Houghton, Ltd.	13,485 13 6
J. H. Thompson & Sons, Ltd., Grimsby†	13,333 0 0

HARROGATE.—For erection of boundary walls to the new cemetery, Wetherby-lane. Mr. C. E. Rivers, A.M.Inst.C.E., Borough Engineer:—

W. R. Birkinshaw	£449 12 9	Kershaw & Hill	£568 16 0
C. Dawson & Son	605 0 0	W. Webster	724 18 0
A. Hymas	574 0 0	G. & C. Winterburn	488 0 0
T. Godfrey	600 0 0	C. A. Nettleton*	442 0 0

[All of Harrogate.]

HATFIELD.—For alterations and additions to Brunswick Park C.C. school. Mr. Urban A. Smith, County Surveyor, Hatfield, Herts:—

J. Bronsdon & Son	£1,487 3 3
Hacksley Bros.	1,440 0 0
G. Wiggs & Son	1,415 8 0
W. Dudley	1,413 10 6½
Blow & Peters	1,369 2 7
A. & B. Hanson	1,320 0 0
J. L. Glasscock & Son	1,291 16 2
G. Henson & Son	1,275 11 6
D. Robinson, Jun., Lower-street, Stansted, Essex*	1,225 10 6

LONDON.—For alterations and additions to No. 2, Melina-place, St. John's Wood. Mr. Henry W. Binns, surveyor and architect, 141, Park-road, London, N.W.:—

Bovis & Co.	£1,137	A. Vigor, Ltd.	£949
W. J. Dickens	989	Buckingham & Sons, St. John's Wood	900
Ekins & Co.	965		

LONDON.—For rebuilding the Hackney Fire Station, for the London County Council:—

Holloway Bros. (London), Ltd.	£13,280	H. L. Holloway	£12,047
Leslie & Co., Ltd.	12,871	Kerridge & Shaw	11,989
Higgs & Hill, Ltd.	12,784	Holliday & Greenwood, Ltd.	11,949
W. Johnson & Co., Ltd.	12,533	Patman & Fotheringham, Ltd.	11,923
J. & C. Bowyer, Ltd.	12,300	G. Godson & Sons	11,549
C. Wall, Ltd.	12,217		

[The Architect's estimate comparable with the tenders is £11,588.]

LONDON.—For the provision of a lift at the Westminster office, for the London County Council:—

R. Waygood & Co., Ltd.	£95	J. Stannah, Bankside, S.E.*	£70
Easton Lift Co., Ltd.	80		

LONDON.—For gas-meter testing apparatus at the Newington and Westminster offices, for the London County Council:—

Parkinson & W. B. Cowan, Ltd.	£805 0
Gas Meter Co., Ltd., 238, Kingsland-road, N.E.*	679 4

LONDON.—For the enlargement of the Senrab-street School, Stepney, for the London County Council:—

Kirk & Randall	£4,467 13 3
H. Groves	4,295 0 0
Thomas & Edge	4,227 0 0
Perry & Co. (Bow), Ltd.	4,226 0 0
Patman & Fotheringham, Ltd.	4,093 0 0
E. Lawrance & Sons, Ltd.	3,945 0 0
J. & C. Bowyer, Ltd.	3,933 0 0
J. Appleby & Sons	3,855 0 0
C. P. Roberts & Co., Ltd.	3,845 0 0

LONDON.—For adaptation of Oldfield-road School, Hackney, as a central school, for the London County Council:—

Rice & Son	£5,511 0 0
A. E. Symes	5,469 0 0
G. Godson & Son	5,396 0 0
L. H. & R. Roberts	5,171 0 0
Brand, Pettit, & Co.	5,128 0 0
C. P. Roberts & Co., Ltd.	5,118 0 0
J. Chessum & Sons	5,099 13 9
Lole & Co.	4,972 5 9
G. S. S. Williams & Son	4,959 0 0

LOUGHTON.—For repairs, etc., to houses at High Beech, for the Metropolitan Water Board:—

W. & C. French	£197 0	H. Almond	£154 0
Foster & Son	186 0	Clemens Bros.	145 10
Bate Bros.	175 0		

NAIRN.—For constructing a timber groyne, 150 ft. long, on the foreshore, about 75 yds. west of the harbour. Mr. D. Munro, Burgh Surveyor, Nairn. Quantities by Burgh Surveyor:—

G. Tolmei, Nairn	£91 15

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RUTHIN.—For erection of a schoolroom, with kitchen, etc., at the Pendref Congregational Chapel. Mr. F. A. Roberts, architect, Mold:—

Williams Bros.	£567 10
T. Roberts & Co., Wrexham-street, Mold*	540 0

[There was a second tendering by the two lowest estimates. This is the final result after amendment.]

SPALDING.—For erection of thirty-six cottages on a site adjoining the Holbeach-road, for the Urban District Council. Mr. J. B. Corby, F.S.I., architect and surveyor, Spalding. Quantities by the architect:—

E. Clarke, Melton Mowbray‡	£5,176

‡ Accepted provisionally, subject to approval by Local Government Board.

[Twelve tenders were sent in ranging from £7,936 to £5,176.]

TORQUAY.—For alterations at Swiss Café, Torquay. Mr. F. G. Moore, A.M.I.M.E., architect and surveyor, 9-10, Fleet-street, Torquay:—

J. C. Parker & Sons	£753 2 5	E. P. Bovey & Son	£627 0 0
R. E. Narracott	732 0 0	S. Blatchford & Sons†	625 6 0
R. F. Yeo & Sons	724 0 0		

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